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THE MONTANA *THE*

—ITS—

CLIMATE, INDUSTRIES,
—AND—
RESOURCES.



GEO. E. BOOS & CO.
Publishers, Printers, Stationers and Binders,
HELENA, MONTANA.



MONTANA

—AT—



OPENING
DECEMBER 1884.

CLOSING
MAY 31, 1885.

The President of the United States, under date of September 10, 1883, issued a proclamation, under joint resolution of Congress, inviting representation and participation of all foreign nations in the World's Exposition. To represent the interests of the Territory of Montana, Hon. John S. Harris, of Helena, was appointed Commissioner, and Hon. Wm. A. Clark, of Butte, Alternate. In order to facilitate the collection of information and exhibits the following gentlemen were appointed County Commissioners:

Lewis & Clarke County, Thos. C. Power and G. C. Swallow, Helena; Jefferson, John Longmaid, Wickes, Nath Merriman, Jefferson City; Gallatin, George O. Eaton, Cooke, S. W. Langhorne, Bozeman; Meagher, Louis Rotwitt, White Sulphur Springs, A. M. Esler, Maiden; Choteau, T. E. Collins and Jere Sullivan, Benton; Yellowstone, P. W. McAdow and Col. L. Whitney, Billings; Custer, Sam'l Gordon and Chas. H. Gould, Miles City; Dawson, David O. Mead and George R. Tingle, Glendive; Silver Bow, R. B. Wallace and H. C. Kessler, Butte; Deer Lodge, F. D. Brown, Phillipsburg, J. C.

Savery, Cable; Missoula, W. E. Bass, Stevensville, F. H. Woody, Missoula; Beaverhead, B. F. White, Dillon, H. Knippenburg, Glendale; Madison, C. L. Dahler and Henry Elling, Virginia City.

Many of these gentlemen have been assiduous in their efforts to make a creditable showing of the advantages and resources of the Territory. These efforts have been made in the face of many discouragements and difficulties.

The chief industry of the Territory being mining, the principal feature of the exhibit consists of ores and minerals. The centers of population are situated in the heart of the mining districts, and much less difficulty was experienced in the collection of mining exhibits than was encountered in collecting the exhibits of the agricultural regions, with which communication is necessarily slow and difficult.

The services of Mr. John B. Read, of Butte, were secured to make a canvass of the Territory for the purpose of collecting information and reports upon the various industries of the Territory. These reports, and much information derived from other sources, are embodied in this pamphlet, in which endeavors are made to direct the attention of the world to the material resources and advantages of this Empire Territory of the Northwest.



MONTANA:

—♦♦ ITS ♦♦—

Climate, Industries and Resources.

GEOGRAPHY.

Montana's greatest length from East to West is 540 miles, its width 275 miles, and its superficial area 145,776 square miles, of which at least one-third is mountainous.

The great watershed between the Atlantic and Pacific, the main range of the Rocky Mountains, traverses the western part, having about one-fourth of the Territory on its western slope, and three-fourths on the eastern.

Smaller ranges, lateral spurs, detached groups of mountains, extensive plateaus and lovely valleys, give beautiful diversity to the landscape.

The western portion is exceedingly mountainous, abounding in beautiful valleys, while to the eastward the country breaks into long rolling prairies, and north of the Missouri subsides into vast plains, once the home of countless thousands of buffalo, but now covered with great herds of cattle, grazing upon the nutritious bunch and buffalo grasses.

Here, and in the valleys and mountains, where the rich grasses grow in luxuriance, great bands of buffalo, deer and elk, still exist, and their hides form a staple article of export to the eastern markets.

The great water courses are the Clarke's Fork of the Columbia, and the Missouri with its chief tributaries, the Milk and Yellowstone rivers. The last three named head amid the summit peaks of the Rocky Mountains, and flow in a general easterly course.

The headwaters of Clarke's Fork are within a few miles of those of the Missouri, but the stream pours down the western slope and across the Territory to the northwest, uniting with the mighty Columbia near the international line between Washington Territory and British Columbia. It drains 40,000 square miles of Montana, while

the Missouri and its tributaries carry with them the waters from more than twice that area.

These rivers are navigable for a distance of 1,500 miles within the limits of the Territory, and the Missouri, which now is and always will be one of her greatest commercial highways, is plied by steamers for a distance of 4,000 miles, from the interior of Montana to the Gulf of Mexico.

Hot or warm springs are found in many parts of the Territory, and lakes are numerous. Among the largest of these are Flathead Lake, 30 by 10 miles, in Missoula County, and Red Rock Lake in Madison County, 25 miles long and 6,500 feet above the sea, distant but five miles from the renowned Henry's Lake in Idaho, from which it is separated by a narrow ridge of mountains.

The Great Falls of the Missouri, 30 miles above Fort Benton, have a perpendicular plunge of 90 feet, and for grandeur and beauty rank among nature's wonders.

Of the ninety millions of acres in the Territory, only twenty millions are classed as mountains, and nowhere are the mountains so abrupt, rugged and sterile, as further south in Utah and Colorado.

Three of the great rivers of the Continent rise in the Yellowstone National Park on the southern boundary of Montana, one of which, the Yellowstone, navigable for a distance of 450 miles, lies almost wholly within its boundaries. The Missouri from its source, (the "Three Forks," or the union of the Jefferson, Gallatin and Madison) is carried nearly 1,000 miles on Montana soil. In the valleys of the western slope of the main range gather the waters that unite to form the great Columbia that pours its flood into the Pacific.

It is estimated that fully three-fifths of the surface of the Territory is suitable for agricultural purposes, and nearly another fifth could be added for the extent of surface adapted for grazing.

Occasionally Montana has a season, as in all parts of the middle temperate zone, when early frosts interfere with the ripening cereals, but as a rule the seasons compare favorably with those of the more southerly points on the Eastern plains.

The rainfall of this region is slight in comparison with that of many other districts on the same parallel, but the streams that flow from the mountain ranges through nearly all the valleys furnish an abundant supply of water for purposes of irrigation.

Miasma is unknown in Montana. The absence of excessive moisture in the atmosphere renders the climate not only less severe in its effects during the cold season, but also secures immunity from the various forms of contagion that arise from marshes in the lowlands in other sections where rain is abundant.

CLIMATE.

There has always been a misapprehension with regard to the

climate of this Territory. As Montana occupies a position on the northern boundary of the United States, it is assumed that our climate is of Arctic rigor.

The comparatively low altitude of Montana is not taken into account in the public estimate of our climatic condition. Mere mention of Montana, it is said, is enough to make an eastern man shiver. In reality no section of the United States has a more equable, pure, delightful and health-giving climate than this great Northwest Empire. No excessively hot weather prevails at any time of the year, and the nights are delightfully cool. During the winter months there are occasional blizzards, not so frequent, however, or as severe as in other northwestern regions. A blizzard never lasts more than two or three days, and is almost invariably succeeded by an opposite meteorological condition. The "Chinook," a warm western breeze from the Pacific ocean, comes to the relief, infusing new life into every business channel and unlocking the frozen grasses, so that the cattle and sheep, without permanent injury, resume their feeding and all nature smiles.

The severity of an ordinary cold snap in Montana has been ridiculously overrated. Leaving the occasional blizzards out of consideration, it may be positively stated that one suffers far less from cold in Montana when the thermometer indicates twenty degrees below zero than in almost any eastern locality when it only touches zero.

This difference is very easily accounted for by the excessive humidity of the atmosphere in the East and by the blowing of the wind, which renders the air painfully cold and penetrating.

The mountain air of Montana is dry, and as the wind scarcely ever blows in winter when the thermometer is down in the zeros, it may be confidently asserted that as far as climate is concerned this inter-mountain Territory possesses every advantage over the New England and northern Middle States.

No wide-awake man who was born in the present century need hesitate to emigrate to Montana on account of the fancied rigors of our climate, for no section in the Union has a better one.

In no part of the country traversed by the great Rocky Mountain range is the average altitude of the valleys and plains so low as in the region embraced within the borders of Montana.

The passes over the highest ranges in the Territory have an altitude of less than 6,000 feet above the sea level, no greater than that of the plains of Colorado, Wyoming and Utah, or the more southern Territories, while nearly all the arable valleys of Montana are from 500 to 2,000 feet lower than the most fertile ones of Colorado and Utah.

In the Bitter Root valley, in Missoula County, for instance, the agricultural possibilities are fully equal to those of the most favored sections of the Centennial State.

The tables compiled by Professor Gannet, of the Hayden survey, show that 51,000 square miles of Montana's area are less than 4,000

feet above the sea, while only 9,000 square miles of Colorado's area, and none of Utah's, are at a less altitude than 4,000 feet.

Montana also contains valleys and bench lands, covering an area of 47,700 square miles, at a less altitude than 3,000 feet, while neither Colorado, New Mexico, Utah nor Wyoming, contains an area of surface as low as 3,000 feet.

The official reports referred to make the mean or average height of Montana above the sea 3,000 feet; that of Nevada 5,600; of New Mexico 5,600; of Wyoming 6,000; and of Colorado 7,000.

Montana possesses an average altitude of 2,260 feet less than the general average of the above named States and Territories, equal to more than seven degrees of lower latitude. Compared with them, the lower altitude of the grazing lands more than compensates for their higher latitude.

For commercial, mining, stock raising and manufacturing pursuits no climate in the world possesses greater advantages; being well adapted to inspire the energy, foster the ambition and promote the health of the people.

The spring season opens early enough to insure the ripening of grain and vegetables.

The summers are not too warm and the autumn months are generally characterized by the very perfection of weather.

Open weather generally ceases with the holidays and for the three succeeding months cold weather, with occasional severe snaps, reigns.

The snow fall in Montana is not more than one-third as much as in Utah and Colorado.

The fact that cattle, sheep and horses, on all the ranges of the Territory are permitted to graze without shelter, except for sheep during a few days of the most severe weather, is perhaps the best evidence that the climate of Montana is all that has been claimed.

COAL.

It was not until the completion of the Northern Pacific Railroad, and the consequent demand for a local coal supply, that serious consideration was given to the discovery and development of the coal resources of Montana.

It was known that in Gallatin County surface indications of coal were abundant, and the certainty of a ready sale stimulated exploration, which happily resulted in the realization of the most sanguine hopes.

Not only in Gallatin, but in Yellowstone, Choteau, Beaverhead and Deer Lodge Counties, coal was found, and subsequent development has demonstrated that the mineral is not only widely distributed, but is of excellent quality.

Up to the present time coal mining has been prosecuted with the

best results in the vicinity of Livingston and Bozeman, in Gallatin County, where the measures have proven of great extent and good quality.

Located about forty miles south of Livingston, and one half mile from the Park branch of the Northern Pacific, is a group of coal claims owned by Messrs. Horr Bros.

Specimen No. 1 in the Montana exhibit is from a vein seven feet wide, on which a drift 700 feet long has been extended, showing all the way a regular and continuous seam of excellent quality.

Specimen No. 2 represents a vein five feet thick, which has been opened up for a length of 400 feet. It extends parallel with, and but 60 feet distant from, the one above referred to.

Specimen No. 3 comes from a vein which has a uniform width of six feet, is clear and compact, and is in process of active development.

These coal measures are found in a formation of sandstone, shale and slate, and have a sandstone roof of remarkable regularity.

Their product is all of coking quality. An analysis of a number of samples recently made by a chemist shows that the coal contains $62\frac{1}{8}$ per cent. of fixed carbon, and that the coke made therefrom contains 84 per cent. of fixed carbon. The coke is thus of exceptional quality, the almost entire absence of sulphur from its composition rendering it a most valuable fuel for the smelting of ore. The heating power of the coke as compared with that of pure carbon is 77 per cent.

No. 4 is a specimen of coal from the Trail Creek mines, 16 miles southwest of Livingston. This product is used almost exclusively for domestic purposes in Livingston and Bozeman. It is a free burning coking coal, and the vein here represented, has a clear width of 12 feet. There are three full claims in the district, each embracing 160 acres, and the extent of their development indicates an expenditure of at least \$10,000. They are located four miles from the Park branch of the Northern Pacific, on a level prairie, of which a 28 mile section is believed to be underlaid with coal measures, the whole of it being capable of profitable development.

Another region which gives promise of a great production of coal lies on what is called the Rocky Fork of Clark's Fork, about 60 miles from Livingston, on the line of the projected branch of the Northern Pacific to Cooke City.

In area, number and extent of coal veins, the region is the largest in Montana. Thus far 16 veins have been found.

The specimens on exhibition (No. 5) are from the Yankee Jim claim, which has a thickness of 11 feet, and is developed by a drift 380 feet long. The amount of money expended in exploration is but \$8,000, but it is intended soon to develop the vein on a scale commensurate with its magnitude.

Another region remarkable for the size, regularity and quality of its coal beds, is on the west side of the Bozeman range, and is known as the Bozeman coal fields. It is here that the Northern Pacific Com-

pany has large interests and is working 200 men, all of whom are extracting coal for locomotive use, for which it is admirably adapted.

Besides the coal land which the Company owns it has recently concluded the purchase of 710 acres of other coal land, on which mining operations will soon be prosecuted.

The Qualey & Hoffman mine is another property of abundant promise, supplying a fine coking coal. The vein, which is 20 feet wide, has been penetrated by a drift for a distance of 400 feet with the most satisfactory results. It is the intention of the owners to begin at once the erection of fifty coking ovens, whose product it is intended shall largely supplant the article now imported from Pennsylvania.

The Union Pacific, or Maxey coal property, was bought last year by the Union Pacific Company for \$20,000. One oven was erected, in which the experiment of making coke was successfully made. Other ovens will be added, and an effort will be made to supply the smelters of Montana, Idaho and Utah with a fine quality of coke at low prices.

There has been some local controversy as to the exact nature of the coal of the Territory. From a strictly scientific point of view it cannot perhaps be properly designated as true coal. As yet no fossils of the carboniferous age have been found in it, and nothing has yet been adduced as evidence that the Montana coal beds were formed at the same time as the bituminous and anthracite deposits in other portions of the country.

Technically, therefore, the Montana product would be called lignite, but it has great heating power and much of it is of excellent coking quality.

CATTLE.

On January 1st, 1884, there were in Montana (estimated) 600,000 head of cattle, valued at about \$21,000,000. During the year 1884 there were brought into the Territory about 100,000 head, which with the natural increase, about 25 per cent., has brought the number up to 850,000, worth \$30,000,000.

Of the cattle shipped into the Territory a large proportion came from Ohio, Illinois, Iowa and other eastern cattle raising States. The animals are all of good grade, and great attention has been given to the selection of thoroughbred bulls.

The total number of cattle now in the Territory (850,000) is apportioned among the different counties as follows, the value being estimated on the present selling value, \$35 per head:

Number and Value of Cattle now in the Territory.

COUNTIES.	No. Head.	Value.
Beaverhead	39,307	\$ 1,375,745
Choteau	119,860	4,195,100
Custer	189,769	6,642,860
Dawson	51,992	1,819,720
Deer Lodge	32,830	1,149,050
Gallatin	59,125	2,069,375
Jefferson	26,554	829,390
Lewis & Clarke	47,855	1,674,925
Madison	24,050	841,750
Meagher	193,171	6,760,985
Missoula	19,152	670,420
Silver Bow	4,214	147,490
Yellowstone	53,084	1,857,940
In round numbers	850,000	\$30,000,000

Over ninety per cent. of these cattle is owned by fewer than ten Companies, the members of which are nearly all home capitalists, and many of them are men who have made all their money in raising cattle in Montana.

This industry has been very profitable in the past, and those who owned any considerable bands at the time the railroad reached the Territory became suddenly rich by reason of their herds doubling in value. There are several cases in which men who were poor ten years ago now rank as cattle kings.

The great profit in this business is largely due to the fact that cattle raising in Montana is free from great expense. The cattle men turn their herds loose upon the ranges, and let them roam at will winter and summer. Twice a year they have their round-ups—that is, they collect all the cattle upon each of the various ranges. In the spring they have a round-up to determine what has been the loss during the winter, and in the fall a round-up is held for the purpose of branding the calves, then several months old.

These two round-ups constitute almost the entire expense of cattle raising in Montana, and the expense of the whole business is comparatively insignificant when one considers the vast herds upon the various ranges and the few men required to care for them.

HORSES.

Montana possesses exceptional advantages for the successful raising of fine horses. In this respect it is not second to the blue grass region of Kentucky, and the racing record throughout the country during the past year supports this seemingly bold assertion.

During the past four years large sums of money have been invested in horse raising, and where it has been intelligently conducted the most successful results have been achieved.

There is something in the climate, soil and grass of Montana peculiarly adapted to the raising of fine horses.

Mr. Hillhouse Raymond, of Madison County, who owns 350 head of pedigreed trotting stock, thus accounts for the superiority of Montana raised horses, in response to a letter requesting his views on the subject:

"In all essential qualities the Montana bunch grass is superior to the grasses of any other part of the Union, not excepting the blue grass of Kentucky, which is often rank and which does not, like our bunch grass, cure on the stalk. The Montana article thus affords nutritious food for grazing stock throughout the winter. Secondly, The atmosphere is pure and dry and the elevation sufficient to insure a good lung development; that is, good wind, without which no horse can be called perfect, no matter what be his pedigree or training. The soil of the ranges is dry and free from alkali or other injurious elements, thus promoting the growth of hard and healthful hoofs, indispensable requisites to perfection in horse flesh. To these causes I attribute the fact that Montana is not equalled elsewhere in the world for the raising of horses, and our stock is coming into active and increasing demand throughout the East for road and racing purposes."

Noah Armstrong, also an extensive breeder of trotting and running stock in Madison County; Poindexter and Orr, who own 1,400 head of finely bred draught horses in Beaverhead County; Ex-Governor Potts, Ex-Governor Crosby, Hundley & Preuit, and others of Lewis and Clarke County, who have met with great success in the raising of fine stock of all breeds, give the same reasons for the beauty, endurance, speed, strength, value and perfection of their trotting, running and draught horses. They are all breeding from the best stallions and brood mares that money can buy, and each successive generation gives visible signs of improvement over the parent stock.

SHEEP.

The rapidity with which Montana has come to the front in the production of wool, has contributed materially to its existing prosperity.

Prior to 1873 there were practically no sheep in the Territory. There are now over 600,000, valued at about \$2,000,000. With the increase of this industry, there has come a corresponding improvement in the character of the sheep raised, and both quality and quantity of the wool clip have improved. Montana wool now ranks next to the highest class of wool raised in the United States. The winter as a general rule being remarkable for absence of severe snow storms,

neither shelter nor winter-feeding is often required, and it needs no argument to prove that the high and dry ranges of the Northwest form the natural home of the sheep, it being next to impossible to originate disease among them where, as in Montana, they have the benefit of a sun bath almost every day in the year. There is no moisture to saturate the hoof and produce foot-rot, or wet the fleece and invite scab and other skin diseases. Browsing on ranges that are never muddy the fleece never gets dirty or matted, and though the animals are rarely washed previous to being sheared, the wool is as clear as that which is washed in many of the States.

Profits on wool growing are estimated by many as greater than on cattle raising, and even the more conservative breeders figure a profit of from 25 to 35 per cent. per annum upon all capital invested, and all agree that the wool clip will pay every item of expense, leaving the increase a clear gain. The loss from all causes is estimated at from 2 to 3 per cent. The annual increase of flocks is placed at 48 per cent., and the increase of 1,000 ewes, 2 years old and upwards, from 80 to 150 per cent., probably averaging 90 per cent. Sheep sell readily at from \$3 to \$3.50 per head. One herder can take care of 2,000 head. Sheep raising is emphatically the poor man's industry in Montana, for, having a free range, timber at hand for construction of sheds and corrals, and in fact no capital needed for running expenses after the first season, he is master of the situation if he can command any sum from \$500 upwards for the purchase of a small flock.

A careful calculation of the profit on 1,000 ewes for a term of 5 years, made by a prominent sheep owner, shows the following:

Year.	Ewes.	Increase.	Ewes.	Wethers.	Clip.
1st	1,000	700	350	350	\$ 1,000
2d	1,175	822	411	411	1,700
3d	1,555	1,088	544	544	2,522
4th	2,033	1,423	711	711	3,710
5th	2,660	1,862	931	931	5,032
		<u>5,895</u>	<u>2,947</u>	<u>2,947</u>	<u>\$13,964</u>
Total wool clip.					\$13,964
5,895 sheep at \$3.					17,685
30 Merino bucks at \$25.					750
Interest on cash obtained for wool.					3,684
					<u>\$36,083</u>

INVESTMENT AND EXPENSE.

1,000 ewes at \$3.	\$3,000
Cabin, sheds and canvas.	800
32 Merino bucks at \$50.	1,600
Herders' wages and board.	2,600
Taxes and minor expenses.	1,000
	<u>11,100</u>
	<u>\$24,983</u>

As an instance of the profits that have been made, may be mentioned the experience of Governor Potts, who invested \$12,000 in 4,000 sheep and held them long enough to secure one clip of wool and a year's increase (2,700 head), sold out and exhibited a profit of nearly \$10,000 inside of 12 months.

PLACER MINING.

It was in "62" that the discovery of rich gold diggings in Montana created the rush of prospectors and adventurers that has no parallel in the history of the Northwest. It is estimated that during the four years succeeding this discovery, the placers of Alder Gulch, in length 13 miles, alone produced the fabulous sum of \$60,000,000, extracted by most primitive processes. For more than twenty years these Alder Gulch placers have been continuously worked. The present annual production is over \$100,000. Now that the placers are in process of exhaustion the great auriferous quartz ledges from which the placer deposits were derived are receiving the attention of miners and are being explored with encouraging results, and the old gulch is resonant once more with the sounds of the gold mining industry.

Succeeding the Pioneer, Bannack and Alder Gulch stampedes came those of Last Chance, Blackfoot, Silver Bow, Bear Gulch and Diamond City. Each was a great event in the early history of Montana, and from each district millions of dollars have been taken.

A conservative valuation of the gold dust produced in Montana places the figures at \$150,000,000, a record that is equalled by no other division of the Union, California excepted.

There is no reason for assuming that the placer deposits in Montana are exhausted. The Territory is of vast extent, gold has been found more or less abundantly in nearly all portions of it, and it may be believed that placers as productive as any yet discovered have hitherto escaped the search of prospectors.

In almost every County of the Territory placer mining is prosecuted more or less actively, and the product for 1884 will not fall below \$800,000 from the placers in Madison, Beaverhead, Deer Lodge, Silver Bow, Meagher, Lewis and Clarke and Gallatin Counties.

INDIANS.

W. F. WHEELER.

According to the census of 1880, supplemented by information from other sources, General James A. Brisbin, long in command at Fort Ellis, made up the following statistics and report:

Blackfeet, including Bloods and Piegans	7,500
Mountain Crows	2,150
Flatheads	104
Pen d'Oreilles	875
Kootnais	333
Flatheads of Bitter Root	295
Yanktonais Sioux of the Missouri	4,043
Assiniboines	1,469
Gros Ventres	1,135
River Crows	900
Assiniboines of the Missouri	997
- Total	19,861

"These Indians are now completely under control. About 1,295 have been induced to adopt the dress of the whites, and 486 to engage in civil pursuits. Of these 171 are farmers. They have two boarding schools and four day schools. There are 4,263 children of school age, but only 287 as yet attend the schools, upon which the Government in the year, 1884, spent \$7,966."

The area of the public domain which has been set aside as Indian Reservations in Montana, aggregating thirty million acres, is given under the heading "Public Lands."

It is estimated that the Indians are now cultivating over 4,000 acres, and they own about 30,000 horses and several thousand cattle. As the Buffalo (Bison) are being rapidly exterminated the Indians are more and more forced to realize that they must take to agricultural pursuits to get a living, and many are engaged in stock raising.

There have been, in the past, many difficulties and wars with the Indians in the Territory, assisted by those on its borders: They culminated in the battle of the Little Big Horn, in which Gen. Custer was killed and his command annihilated by a vastly superior force under Sitting Bull, in the year 1876; but the subsequent military operations under Generals Gibbon, Howard and Miles, put an end to all further Indian depredations and wars. In these later military operations and battles the names of Chief Joseph, Looking Glass and White Bird, and the battles of Big Hole and Bear Paw Mountains, became household words. The resident Indians of Montana did not take part in these later battles. The Flatheads did not, being partially christianized and civilized by the Catholic fathers, who had much influence over them, and the Blackfeet did not, having a wholesome recollection of the severe punishment inflicted upon them by Major Baker in 1870, and it is now believed that danger, or even annoyance, from Indians no longer exists. The recent construction of railroads would also of itself preclude the possibility of any serious uprisings among them.

SCHOOLS.

HON. CORNELIUS HEDGES.

Montana has a system of public free schools under a law first adopted in 1872, similar in its essential features to that of California. It includes the item of supervision both by Territorial and County Superintendents, the latter, however, only having power to issue teacher's certificates. The Territorial Superintendent is appointed by the Governor, confirmed by the Council; the County Superintendents are elected at the general election occurring every two years.

The Territory is divided into school districts of convenient size, though some are inconveniently large in area, and not less than five heads of families are necessary to form a new district.

In practice all of the larger cities and towns constitute single school districts, this being found to be much more advantageous for grading and more economical in administration.

The principal district officers are three trustees, one elected annually to serve for three years, and a clerk. The trustees have full powers to build or otherwise provide school houses and furniture and employ teachers.

The school houses are built and furnished by special district taxes, or from the sale of district bonds, which under general law may be issued for that purpose, not exceeding two per cent. of the taxable property of the district.

The pay of teachers is provided for by a County tax of not less than 3 or more than 5 mills on all the property in the County; and the money thus raised is divided among the districts in proportion to the children of school age—4 to 21 years.

Each district must maintain a school for at least three months, or forfeit its existence.

The money raised by County tax remains in the County treasury, and is only drawn on orders of trustees to pay teachers.

In addition, each district may vote special tax for longer school terms.

There are at present about 200 school districts in the Territory, those in the larger places employing several teachers and continuing the terms during nine months, but the larger number not more than four months, making the average between five and six months.

The number of children of school age in the Territory is about 14,000, and about 54 per cent. of that number are enrolled as scholars. If the enrollment were reckoned on the age of actual attendance—5 to 15 years—the per cent. would be over 70, and the per capita of money expended in education would be as great as that of any State in the Union.

There are no Normal schools in Montana for training teachers, and relatively high wages are paid to induce their coming from other

States, the average of teachers' wages for all grades per month being about \$60.

The people of Montana support their public schools with hearty unanimity and unexampled liberality. Every considerable place in the Territory has one or more elegant, substantial and commodious brick and stone school house, capable of seating from 200 to 500 children.

The value of the public school buildings in Montana is not less than \$250,000, and upwards of \$200,000 per annum is expended in their support, derived exclusively from taxation.

FORESTRY.

CATALOGUE OF TREES AND SHRUBS.

G. C. SWALLOW, M. D., LL. D.

The trees and shrubs of Montana are the most useful and essential products of the country. They have furnished the fuel and timber so indispensable in mining and farming. Without the timber the mines and farms must have remained undeveloped until the railroads were built to transport the necessary fuel and timber.

The utility of the trees and shrubs is still more obvious in the numerous streams and fountains, which they fill with waters for mining and irrigation. They also fill the clouds, which descend in rain and snow to moisten the thirsty soil and make the fountains and streams perpetual, and fill our navigable rivers.

The number of our trees is so small that a scientific classification will not be necessary, save to group the familie and genera.

PINES, SPRUCES AND FIRS.

The pines, spruces and firs constitute much the larger portion of our mountain forests. They are by far the most useful trees of the Territory, for they have thus far furnished our lumber and our fuel.

Heavy Pine, *Pinus ponderosa*, called, in Montana, yellow pine, is the largest and most useful of all our trees. It furnishes nearly all our excellent pine lumber and our best fuel. It grows on the lower portions and foot-hills of all our mountains, and it sometimes attains the size of six or seven feet in diameter and one hundred feet in height.

Bull or Bird's-Eye Pine, *Pinus contorta*, is a slender, straight and tall tree, growing in dense forests on the middle and upper slopes of our mountains. It is erroneously called white pine in Montana. Its wood is white, rather hard, and finely marked with bird's-eye curls, and it takes a fine satin polish. It is a beautiful wood for furniture and inside finish, fully as handsome as bird's-eye maple.

Hoary-Branched Pine, *Pinus albicaulis*, grows high up on the bleak mountain ridges. Wood like that of white pine.

Mountain White Pine, *Pinus flexilis*, grows high in the mountains. The wood similar to the last, and has all the good qualities of the white pine of the Northeastern States.

Douglass Fir, *Abies Douglassii*, grows in dense forests on our mountain slopes, especially in cool, moist localities. Wood firm, strong and durable. Trees sometimes five feet in diameter and ninety feet high. The Douglass fir resembles the hemlock in its foliage and general appearance. Every tree grows oblique to the height of six or eight feet and then becomes erect.

Engelmann's Spruce, *Abies Engelmanni*, is a straight, tall spruce, growing in the ravines on the mountain sides.

Black Spruce, *Abies niger*, grows in the mountains.

White Spruce, *Abies alba*, is found in the mountains.

Hemlock, *Abies Canadensis*, is reported by Capt. Mullan; but we have never seen it in the Territory.

Mountain Fir, *Abies Menziesii*, grows abundantly in wet places high in the mountains.

Subalpine Fir, *Abies subalpina*, grows high in the mountains.

Western Larch, *Larix Occidentalis*, rare west of the main range.

Red Cedar, *Juniperus Virginiana*, grows on the bluffs of the Missouri and other rivers, and along the prairie ravines. The wood is rather hard and highly colored. It is used for furniture.

Sabine Juniper, *Juniperus Sabina*, is a shrub or small tree on the foot-hills.

Common Juniper, *Juniperus Communis*, grows on plains and foot-hills in clumps.

Running Juniper, *Juniperus Virginiana*, var. *procumbens*, on the bluffs and high plains, in low dense patches, creeping over the ground.

Arbor Vitæ, *Thuja Occidentalis*, is very rare in the mountains.

POPLARS AND WILLOWS.

Balsam Poplar, *Populus balsamifera*, grows on streams of both slopes.

Balm of Gilead, *Populus candicans*, bordering the streams.

Narrow-Leaved Balsam Poplar, *Populus angustifolia*, is the most abundant species.

Columbia Poplar, *Populus trichocarpa*, in western Montana.

Cotton Wood, *Populus monilifera*, grows on low grounds along the streams in straggling clumps, from fifty to eighty feet high.

American Aspen, *Populus tremuloides*, in cool, moist places in mountain ravines and along the mountain torrents. Its colored leaves give the mountain forests a gay appearance in the autumn.

Black Willow, *Salix nigra*, grows eight to fifteen feet high in dense thickets.

Shining Willow, *Salix lucida*, grows in dense thickets along streams.

Mountain Willow, *Salix rostrata?*, grows in the mountains ten to fifteen feet high.

Diamond Willow, *Salix* ————?, grows on the lower Yellowstone and the Missouri. It forms a singular diamond shaped cup around each twig.

MAPLES, BIRCHES AND ALDERS.

Western Birch, *Betula occidentalis*, grows fifteen to twenty feet high along our mountain streams.

Box Elder, *Negundo aceroides*, forms a fringe on our streams. It is cultivated as an ornamental tree, and the sap is sometimes used for sugar. The wood is hard, fine grained and beautiful.

Mountain Maple, *Acer montana*, grows in the mountains to the height of ten to twenty feet. Its colored leaves, branches and fruit, make it a fine shrub.

Mountain Alder, *Alnus viridis*, along the mountain streams.

Smooth Alder, *Alnus serrulata*, forms a fringe along our mountain streams.

PLUMS, CHERRIES AND OTHER FRUITS.

Wild Red Cherry, *Prunus Pennsylvanica*, rare north.

Choke Cherry, *Prunus Virginica*, in clumps beside the streams.

Wild Plum, *Prunus Americana*, not common.

Wild Service, *Amalanchia Canadensis*, very common and very fruitful. The fruit is much sought by bears.

Mountain Ash, *Pyrus Americana*, rare in the mountains.

Pyrus Sambucifolia is reported as growing in the Territory by Prof. Chickering.

Black Thorn, *Crataegus tomentosa*, is a rare shrub.

White Thorn, *Crataegus coccinea*, occurs on both slopes of the main range.

Thornless Rose, *Rosa blanda*, is common on the rocky prairies.

Red Currant, *Ribes rubrum*, is abundant along the streams.

Black Currant, *Ribes floridum*, is found on the water courses.

Missouri Currant, *Ribes aurum*, on the Missouri and other streams.

Prickly Gooseberry, *Ribes cynosbati*, is quite common.

— Gooseberry, *Ribes hirtellum*, on the borders of woods.

Round-leaved Gooseberry, *Ribes rotundifolia*, grows on both sides of the main range.

Elder, *Sambucus racemosus*, is rare in the mountains.

Sweet Viburnum, *Viburnum lentago*, is sometimes called black haw. It is rare on the streams, and grows from ten to fifteen feet high.

High Cranberry, *Viburnum opulus*, on the mountains in a few localities.

Bear Berry, *Arctostaphylos uva-ursi*, is very common in the mountains.

Snowberry, *Symphoricarpus racemosus*, in the ravines on the foot-hills.

Wolf Berry, *Symphoricarpus occidentalis*, in rocky foot-hills.

Red Osier, *Cornus stolonifera*, in moist banks of streams. The inner bark scraped and mixed with tobacco forms the famous kinnikinnie of the Indians. It gives a delightful flavor to the tobacco. There are two other species of *Cornus*.

Among other small fruits Montana has the Bearberry, Red-blueberry, Foxberry, Strawberry, Raspberry, Bunchberry and Low Cranberry.

Buffalo Berry, *Shepherdia argentea*, on the Missouri and other streams.

Silver Berry, *Eleagnus argentea*, same as the last.

Sweet Sumac, *Rhus aromatica*, on foot-hills.

Smooth Sumac, *Rhus glabra*, same as last.

Holly-leaved Mahonia, *Mahonia aquifolia*, on the mountains. The fruits are showy and are sometimes called Mountain grapes and Oregon grapes.

False Syringa, *Philadelphus inodorous*, abundant in the mountain ravines.

Grease-Bush, *Sarcobatus Maximilianus*, is very abundant on all the prairies and hill-sides.

Sage-Brush, *Artemisia cana*, grows everywhere in the valleys and plains. There are six species of *Artemisia* in Montana.

Grease-Wood, *Synosyris graveolens*, on dry plains and rocky slopes. Its twigs burn quickly, and it is much used for kindling fires.

Mountain Tea, *Ceanothus velutinus*, in swampy places.

Ninebark, *Spirea opulifolia*, on both slopes of the main range. There are three other species of *Spirea*.

Lead-Plant, *Amorpha canescens*, this plant is considered a good sign of lead. It is abundant on rocky hills. *Amorpha fruticosa* is common in the dry streams in the prairies.

Mountain Mahogany, *Cercocarpus ledifolius*, is a shrub or small tree whose wood is as hard as ebony and heavier than water. It grows on rocky mountain sides and tops.

VINES.

There are many beautiful vines in Montana.

Virgins' Bowery, *Clematis virginiana*, and two other showy species of *Clematis* adorn the margins of our mountain forests.

Virginia Creeper, *Ampelopsis quinquefolia*, is widely known as the most ornamental of American vines.

American Hop, *Humulus lupulus*, a plant well known for its medicinal, economic and ornamental values, grows in all parts where trees and shrubs border our water courses.

PLEASURE AND HEALTH.

In no part of the world can the tourist find more that is interesting and instructive in nature than in Montana. The scenery—mountains, hills, valleys and lakes—is grand and beautiful. The streams abound with fish and the plains with buffalo, bison, deer, antelope, elk, bear, etc., and game birds are abundant. Montana is the hunter's paradise, and many from foreign countries make annual visits to it and have rare sport.

Not only the pleasure seeker, but the invalid and health seeker, can find within its fair domain the object of his search. In Deer Lodge County is located the "Warm Springs," where every accommodation has been provided for the invalid. Adjacent to Butte are the Pipestone and the Boulder Springs; in Meagher County the White Sulphur Springs; in Jefferson Co., the Clancy Warm Springs. These and several others in the Territory are all health resorts much patronized, and the invalid may rest assured of the best medical attention and satisfactory accommodations. No one in search of recreation or health can more certainly find either, or both, than by visiting or emigrating to peerless Montana. It has a long and well-earned reputation for the cure, or alleviation, of lung diseases.

PUBLIC LANDS.

STATISTICS FURNISHED BY U. S. SURVEYOR GENERAL FOR MONTANA.

Total area of Montana in square miles	143,776
" " " " acres.....	92,016,000
Number of acres exclusive of Indian and military reservations.....	61,442,000
Number of acres surveyed to Dec. 1883.....	16,000,000
Number of acres in Land Grant to Northern Pacific R. R.	20,500,000
Number of acres N. P. lands surveyed to Dec. 1883	5,700,000

INDIAN RESERVATIONS.

Crow,	9,128.2 square miles, or.....	5,842,000 acres.
Piegian, etc.,	34,450.7 square miles, or.....	22,048,000 "
Flathead,	2,607.2 square miles, or.....	1,669,000 "
Total.....		29,559,000 "

MILITARY RESERVATIONS.

Fort Buford (in Montana)	450 square miles.....	288,000 acres.
" Assiniboine "	895 "	573,000 "
" Keogh "	90 "	57,000 "
" Ellis "	50 $\frac{1}{4}$ "	32,160 "

Fort Shaw	"	50	"	32,000	"
" Maginnis	"	48½	"	31,040	"
" Missoula and timber res. about 2 sq. miles				1,200	"
Total.				1,015,000	"

NORTHERN PACIFIC RAILROAD LANDS.

(C. A. LAMBORN, LAND COMMISSIONER, ST. PAUL, MINN.)

The Northern Pacific Railroad runs for nearly 800 miles through the Territory of Montana east and west.

The land grant of this Company in Montana comprises the alternate and odd numbered sections of land for 50 miles on each side of the railroad. Mineral lands, other than those containing coal or iron, are excepted from the railroad grant.

The total grant of land to the Railroad Company in Montana is estimated at about 20,000,000 acres. Of these lands about 1,000,000 acres are agricultural and timber lands and the remainder, 19,000,000 acres, are grazing and mountain lands.

The grazing lands in Montana are among the best in the United States, especially the lands lying in eastern and central Montana, east of the main range of the Rocky Mountains.

Of the agricultural lands owned by the Company in Montana 136,838 acres had been sold up to the close of the fiscal year ending June 30, 1884. The average price received by the Company for these lands was something less than four dollars per acre.

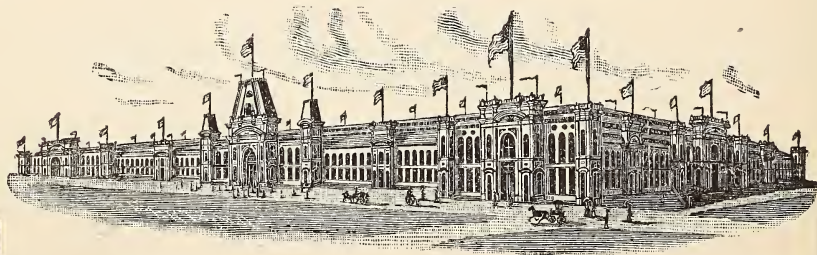
The grazing lands owned by the Railroad Company are in the market for sale, and many stock men are becoming the owners of their ranges.

First class stock ranges are offered for sale by the Railroad Company at prices ranging from \$1 to \$2.50 per acre.

The climate of Eastern Montana is mild, the severity of the winters being modified by the warm winds from the Pacific Ocean, which rapidly melt the snow falling on the ranges.

The broken character of the country affords excellent shelter for stock, and the cattle graze on the ranges throughout the entire winter.

The shipments of cattle from Montana over the Northern Pacific Railroad to Eastern markets average about 100,000 head per annum.



COUNTIES.

The prosperity of the Territory, in all sections, is apparent in the great increase in values and the rapid building up of towns, in important mineral discoveries and developments, and in the rapid settlement of the country.

In 1883 the total assessments on taxable property (the improvements only on mines are assessed) amounted to \$46,000,000. The assessments for 1884 show an increase of about 25 per cent., and the growth of the towns is marvelous. That of the Capital, noticed elsewhere, is a fair representation of the growth of other towns.

The census of 1880 gave the Territory less than 40,000 inhabitants. Comparing the vote of that year with that of the year 1882 the population increased to 65,000 in the two years. In 1883 it was supposed to be 70,000, and its present population is estimated at 100,000.

BEAVERHEAD.

This county ranks third in mineral wealth and production, being exceeded only by Silver Bow and Lewis and Clarke. The richest silver-lead veins of the Territory have been discovered in that portion of the Rocky Mountains lying within its borders.

Its most prominent mining camps are Glendale, Argenta and Blue Wing. In production Glendale district is third among the local mineral districts of Montana. Here are located the Hecla Consolidated Company's works, which are of first class magnitude. Argenta and Blue Wing districts are comparatively new, but contain rich silver-lead mines.

The valley of the Big Hole river, the largest in the County, is a vast expanse suitable alike for agriculture and stock raising, and its contiguous cattle ranges furnish excellent grazing for stock and sheep.

The total assessment of the County for 1884 is \$4,500,000.

Dillon, the County Seat, is on the line of the Utah Northern Railway, and has a population of 1,500. As a business center it ranks next to Helena and Butte, being the distributing point for an extensive

and prosperous section of the Territory. It supports one newspaper, The TRIBUNE, and furnishes business for two banking institutions. It is the metropolis of Southern Montana.

CHOTEAU.

This County is in the northern part of the Territory, and has an area of nearly 30,000 square miles. It is notable for its great grazing and fine agricultural lands, consisting for the most part of rolling prairie, which has been found to produce excellent crops, in many cases without irrigation. Unfortunately more than half the County at present forms part of an Indian reservation. There are about 75,000 head of cattle in the County, valued at over \$2,000,000; about the same number of sheep, and a large number of horses.

Fort Benton is the principal town and the head of navigation on the Missouri. It has a population of about 2,000 and is the oldest town in the Territory, the Fort was built in 1846 by the Hudson Bay Company. Before the construction of the Utah Northern and Northern Pacific Railways most of the heavy freight traffic of Montana, and much of the passenger traffic, passed through it. The town is now dull, but the anticipated opening up to settlement of reservation lands, and the proposed construction of a railroad to Helena, give hopes for prosperity in the near future. Newspapers—The RECORD and The RIVER PRESS, daily and weekly.

CUSTER.

This is a very large County, having an area of 25,000 square miles. In cattle raising it occupies the second place with 190,000 head, valued at \$7,000,000. Its sheep industry is also important and is estimated at 50,000 head, with a value of from \$150,000 to \$175,000.

It ranks second also as an agricultural County, with 189,351 acres under cultivation the first part of the past year. It is well adapted for both the above industries, and promises to take the lead in them. The fertile valleys of the Powder, Tongue, Rosebud and Big Horn, with a considerable portion of the Yellowstone rivers, are included within its borders. It has a comparatively mild climate.

Miles City, with a population of nearly 2,500, is the County Seat and an important trade center, and there are several other growing towns along the railroad, among them Forsythe and Custer.

A large portion of this County is at present in possession of the Crow Indians. Newspapers—The YELLOWSTONE JOURNAL, Miles City, daily and weekly, and The STOCKGROWERS' JOURNAL, weekly.

DAWSON.

This is the largest County in the Territory, having an area of about 32,000 square miles, a large proportion of which is rich agricultural land. Its principal valleys are those of the Yellowstone and Milk rivers, with numerous smaller valleys. Much of its area is still set apart as an Indian reservation, which contains as fine agricultural and grazing lands as can be found anywhere in the Northwest. Strong efforts are being made for a reduction in the size of the very large Indian reservations in Montana, and it is expected that such reductions will be made in the near future.

Though Dawson is one of the eastern Counties of the Territory it was one of the last to be settled, being inaccessible until the completion of the N. P. R. R., and has therefore at present a comparatively small amount of improved land, but its rich valleys are being rapidly occupied by settlers. Its principal industry is stock-raising, mostly cattle.

The Assessor's returns a year ago showed a total of only 12,813 head, but since that time natural increase and importation have raised the figures to 51,092 head, valued at \$1,778,220. In 1880 this County had no assessable wealth. In 1882 the assessment was \$239,158, and in 1883 \$843,914. This year it will be about \$2,500,000.

Glendive is the County Seat, and is situated at the point where the N. P. R. R. enters the Yellowstone valley. It has a population of about 1,500 and supports one newspaper, The INDEPENDENT.

DEER LODGE.

This County is noted for the number, extent and steady productiveness of its placer mines. For many years it has taken the lead in this branch of mining. There are also within its borders promising mineral veins of gold, silver, copper, etc., a number of which—notably the Cable and those at Philipsburg—have proved to be of great richness and value. The great Anaconda Works, recently completed, are in this County, and are connected by a branch railroad with the Utah Northern, which puts them in connection with the mines of Butte. They cost \$1,000,000, and have a reduction capacity of 500 tons of ore per day.

Stock-raising, farming and mining, are all important and profitable industries, cattle about 20,000, sheep 50,000, horses 8,000, valued at about \$1,000,000.

The area of the County is about equally divided between mountains and valleys, and the most notable agricultural portion is the beautiful Deer Lodge valley, sixty miles long and from five to ten miles wide. In this, and many other fertile valleys which open into

it, are many fine farms. The foot-hills and a large proportion of the mountains give fine pasturage.

Deer Lodge, with a population of 1,200, is the County Seat. Here is located the Montana Collegiate Institute and an Academy for girls. The NEW NORTHWEST, a weekly newspaper, is published here. This place, on account of the beauty of its situation and its healthfulness, is regarded as one of the most delightful places for residence.

GALLATIN.

This County ranks first in the fertility and productiveness of its farming lands. The area of the County is about 10,000 square miles. The arable land of the Gallatin valley amounts to about 500 square miles (2,000 quarter sections), one-half of which is taken up for farming and pasturage and about 150,000 acres is under cultivation. The Assessor's figures show that Australian Club wheat yielded 46 to 70 bushels to the acre and Fife wheat 30 to 33 bushels. Oats averaged 50 bushels, with instances reaching 75 to 100. Barley yielded 40 to 50 bushels, and of prime quality. Grass grows luxuriantly. Twenty-one thousand acres of hay land were returned in 1883 as producing 24,000 tons of hay, and during the present year Timothy lands yielded an average of two tons per acre. Very large quantities of wild hay are cut every season, often yielding a ton to the acre.

Gallatin County is also rich in minerals—coal, iron, gold and silver. The wool, cattle and flouring interests are very important. In 1883, 11,000 sacks of flour were turned out of the mills, a quantity that will be largely exceeded during 1884.

The following are the assessment returns since 1875:

1875.....	\$ 874,884	1880	\$1,661,030
1876.....	928,120	1881.....	1,955,220
1877.....	986,095	1882.....	2,298,474
1878.....	1,190,060	1883.....	4,948,000
1879.....	1,386,340	1884	6,255,910

The progressive increase thus shown may also fairly be taken as indicative of the accumulation of property in most other Counties in Montana.

Bozeman, an incorporated city of 2,500 inhabitants, is the County Seat and the commercial center for a large section of Montana. It is beautifully situated, well built, has a very large school house and five churches, several Lodges, and two newspapers, the CHRONICLE and AVANT COURIER.

Livingston, 25 miles east, is the point from which extends a branch railroad to the National Park. Here also are located the car shops of the N. P. R. R., employing many men, and here are published the daily ENTERPRISE and TRIBUNE.

The noted "Emigrant Hot Springs," yielding probably 10,000 barrels of warm water per day, are situated in a lovely valley, surrounded by mountains, four miles from Findlay's Station. The Apollinaris Springs are situated at the head of Mill Creek, about ten miles from Riverside Station on the branch road to the National Park. The waters are highly effervescent, temp. 40 deg., have a very refreshing taste and are claimed to be highly medicinal. They are a comparatively recent discovery.

JEFFERSON.

This County lies south of Lewis and Clarke. The City of Helena is only two miles from the dividing line between them, and in a commercial sense the two Counties are united. It has an area of 5,000 square miles, and is bounded on the south and east by the Jefferson and Missouri rivers. Its industries are mining, agriculture and stock raising, the first being very important. At Wickes, Elkhorn, Gregory, Boulder and Basin, are situated the most important mines, and at the first three mentioned places large reduction works are in successful operation.

The stock interests include 10,000 horses, 15,000 sheep and 25,000 cattle, with a total valuation approximating a million dollars. Boulder and Pipestone rivers, and Crow, Fish, White Tail and Prickly Pear creeks, water large, rich and fertile valleys, and notwithstanding the limited area of this County comparatively, there is still considerable land subject to location by settlers. The County Seat is Boulder, with a population of 400, and Wickes, Radersburg, Jefferson City, Basin City and Clancy, are among the other principal towns.

In this County are situated the Boulder Hot Springs and the Clancy Warm Springs, both fitted up as pleasure and health resorts, and much patronized.

LEWIS AND CLARKE.

This County contains about the same area as Jefferson, and has a population of 13,000. It is centrally located at the eastern base of the Rocky Mountains, has large and varied resources and is practically out of debt. Its assessment in 1883 was \$6,782,727, and in 1884 it exceeded \$8,000,000. At the beginning of 1884 there were cattle, horses and sheep in the County valued at a million dollars, nearly 200,000 acres of land taken up and much of it under cultivation, a million of dollars invested in quartz mills and reduction works, while the mining interests furnished employment to about 2,000 men.

Helena, the Capital of the Territory, is the County Seat, and the

commercial and money center of Montana. It lies at the foot of the eastern slope of the main range of the Rocky Mountains, at an altitude of 4,266 feet above sea level. Below it lies the picturesque Prickly Pear valley, beyond which, and 16 miles distant, is the Missouri river. The business part of the city is built in Last Chance gulch, which 20 years ago was one of the most productive gold fields in the world. It was discovered by three prospectors, John Cowan, John Crabb and D. J. Miller, who opened it in the spring of 1864 and then sought for richer diggings elsewhere, failing to find which they returned to this gulch, which they called their "last chance," and hence its name. The gulch yielded \$30,000,000 during the first three seasons it was worked, and has been a steady producer of gold ever since. These mines are so nearly worked out that they do not yield more than \$50,000 a season.

Helena has been one of the principal distributing points for supplies of the Territory almost from its beginning, and by its enterprise has exerted a wide and helpful influence upon the surrounding country. The trade of the city is sufficient to justify the establishment of four National Banks, whose combined deposits, according to the last report of the Comptroller of the Currency, aggregated about \$5,000,000.

The quartz mining districts in the immediate vicinity, which include some of the most productive mines of the Territory—the Drum Lunon, Gloster, Gregory, Helena Mining and Reduction Company's property, and several others of almost equal importance, together with the horse, cattle and sheep interests centering there and the vast agricultural country immediately tributary, give to Helena an immense retail trade, which these growing industries continue to increase. The fact that during 1884 over three hundred buildings were erected within the city, at a cost of over a million dollars, gives ample assurance of the growth, stability and enterprise of the city.

Two daily and weekly newspapers, the HERALD and INDEPENDENT, and the MONTANA STOCK AND MINING JOURNAL, besides several other weekly and monthly newspapers, are published there.

Socially Helena is without a peer in the Northwest, and a fact that speaks well for a city of ten thousand inhabitants is that it has eight churches, four public school buildings and two collegiate institutes. Already there is railroad outlet in three directions, and two other roads are projected. The city is supplied with excellent water, gas works and electric lights, and during the coming summer will be provided with street car lines.

A little way beyond the suburbs of Helena are situated the Helena Hot Springs, which, since very early days, have been a resort for the citizens of Helena and vicinity. Extensive improvements and rearrangements are now in progress, with a view to enlarged accommodations for increased patronage. Four of such resorts are frequented by the citizens of Helena and its vicinity, viz: Helena Hot Springs, Clancy Warm Springs, Boulder Hot Springs and the White Sulphur

Springs, (Meagher Co.) Among its important towns are Silver City, Marysville and Sun River, at which latter place is published the SUN RIVER SUN.

MADISON.

The three leading industries of this County are mining, stock growing and farming. The County is well watered, has a great quantity of arable land (about 100,000 acres are already purchased and much of it improved), an abundance of good pasturage and important mining interests both of quartz and placer. The attention of stock raisers is about equally divided between horses, cattle and sheep, there being about 25,000 cattle, valued at almost \$1,000,000; 18,000 horses, estimated worth \$800,000, and 20,000 sheep, worth over \$60,000. The agricultural section is situated chiefly along the Madison and Jefferson rivers (two of the three streams which unite to form the Missouri) and their tributaries. The land is fertile and well situated for irrigation.

In this County is situated the celebrated Alder Gulch, from which \$60,000,000 of gold was taken within four years after its discovery in 1863. These placers are yet worked and are still very profitable, although the richest diggings were worked out years ago. The County is skirted on the south by the main range of the Rocky Mountains, and is pierced by lateral spurs in which are found valuable deposits of gold, silver, lead and copper bearing quartz. Here, however, as in nearly all other sections of the Territory, quartz mining is only in its infancy, and the results are small as compared with what may be looked for in the near future. The County Seat, Virginia City, has about 1,000 inhabitants. The other important towns are Sterling, Loraines, Sheridan, Salisbury and Silver Star. The MADISONIAN weekly, and the Montana CHURCHMAN, monthly, are published at Virginia City.

MEAGHER.

This County, noted as the best grazing County of Montana, is situated in the very center of the Territory. It is 100 miles wide, 200 miles long, and contains an area of about 20,000 square miles.

It is estimated, taking the known increase in other Counties as a basis, that there are in round numbers 200,000 head of cattle in this County, which at the present average selling prices of \$35 per head would be worth \$7,000,000. The Assessor's figures, however, are considerably below this estimate, from the well known fact that property is never assessed at its full value. It also has 200,000 head of sheep,

worth over \$600,000, besides 15,000 horses, valued at about three quarters of a million.

Its mountain ranges, occupying perhaps half the County, abound in minerals—gold, silver, copper, lead, iron and coal. The most extensive gold and silver mines in the County are situated in the Judith Mountains, at Maiden, Neihart and Barker. At the former place are good paying gold placer mines and extensive quartz veins, while at Neihart there are as rich silver-lead mines, so far as developed, as are found in the Territory.

The Missouri river flows along Meagher County's whole western boundary, and the Musselshell forms its eastern boundary. The Judith and Smith rivers are the other most important streams.

About 200,000 acres of productive agricultural land is already on the County tax list, and many valleys yet remain to be settled, while the foot-hills afford abundant pasturage.

White Sulphur Springs (hot springs), a health resort of no little note, is the County Seat. It has at present a population of about 800, and one newspaper, *The Husbandman*. The other principal towns are Townsend, where is published the *Tranchant*, Martinsdale and Maiden, at which latter place is published the *Mineral Argus*.

The population of Meagher County is at present about 5,000, but the County is capable of supporting a population of at least 100,000.

MISSOULA.

Missoula is one of Montana's oldest settled Counties. It is situated in the northwest corner of the Territory, and contains 30,000 square miles. The surface of the County is one-third mountains and the rest valleys and plateaus. This is the only County in the Territory where fruit raising has been successful, and its orchards contain more than twice as many fruit trees as all the rest of the Territory combined.

Missoula County also leads in the manufacture of flour and stands second in the production of wheat, of which it cultivated last year 5,196 acres, producing 124,226 bushels. It also produced 281,312 bushels of oats, the largest amount produced by any one County in the Territory. In the production of pork it also stands at the head. Its lumbering interests are also extensive and important, over 40,000,000 feet of lumber being produced in 1884. In cattle, sheep and horse raising it does not rank with the majority of the other Counties, its number of cattle being about 10,000, sheep 13,000 and horses 8,000. It is chiefly noted for its farming lands.

The principal streams are the Missoula, Bitter Root, Jocko, Flat-head, Pen d'Oreille and Big Blackfoot, with scores of tributary streams. The valleys are from 50 to 100 miles in length, and from one

to ten miles wide. The Bitter Root and Missoula valleys are the most thickly settled, but there is still room for hundreds of new settlers in each. In some portions of the County promising gold and silver discoveries have been made, notably in the Sweathouse region; but not much has been done in the way of development.

Missoula, the County Seat, is beautifully situated on a high plateau, at the junction of the Bitter Root and Hell Gate rivers, has about 2,000 inhabitants, and is building up rapidly. The weekly *MIS-SOULIAN* and *TIMES* are published here.

SILVER BOW.

This County has a population of 14,000, and the assessed value of its property for 1884 was \$7,240,000. Mining improvements only are assessed. It was settled first in June, 1864, the date of the first placer gold discoveries, which were believed to be its only source of wealth, though one quartz mine, the Missoula, was located in that year. The placers were worked until 1874, when their yield diminished, and the population dwindled to about 300 souls. Early in 1875 earnest attention was first directed to quartz mining, and from that time Butte has continued to flourish until it now stands at the head of the silver and copper mining camps in the world. It is the pride of its business men and the wonder of visitors. The latter are now flocking thither from all parts of the compass to seek the numerous opportunities there afforded for the profitable investment of capital in mining and commercial pursuits. The City of Butte, which is in the centre of the mineral district, contains a population of 10,000, and is an incorporated and well ordered city. It sustains three banks, the oldest being Clark & Larabie, and the others Hoge, Brownlee & Co. and the First National. Their aggregate deposits amount to \$3,000,000.

The schools of Butte are second to none in the West, having property valued at \$40,000 and a corps of 21 teachers. The city contains seven churches with resident ministers, four hospitals, two well equipped fire companies, two newspapers, the *INTER-MOUNTAIN* and *MINER*, one \$50,000 opera house, one water company, one gas company, one electric light company, a court house which cost \$150,000, secret society buildings, etc., etc. The terminus of the Utah & Northern railroad is within one mile of the city. The receipts on freight incoming and outgoing are over \$6,000,000 per annum, the amount of Butte freight handled in 1883 being 169,000,000 lbs., and in 1884 250,000,000 lbs., consisting chiefly of outgoing ore and matte.

The County contains 19 mills, smelters and concentrators, and gives employment to 3,000 miners. It contains the greatest mineral district in the world, its copper interests particularly having of late assumed vast proportions.

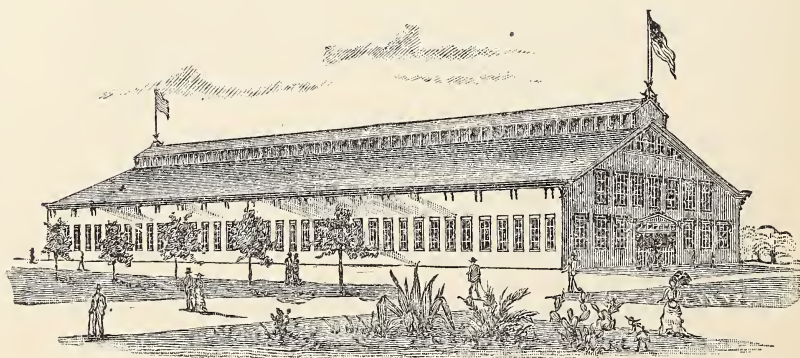
YELLOWSTONE.

This, the youngest County in the Territory, was formed by act of the session of the Legislature of 1883 out of the western portion of Custer County, and a portion of the eastern end of Gallatin. It is 125 miles long and 45 miles wide. The Yellowstone river forms its southern boundary, separating it from the vast Crow Indian reservation.

Its chief resources are stock raising and agriculture, and the rich coal regions of the Bull Mountains are destined in a short time to furnish the coal supply of the Northern Pacific country.

Billings, the County town, is advantageously situated to command the trade of northern Wyoming, 150 miles south; and to the north that of the Barker mining district, as well as the sheep and cattle country of the Musselshell river and the Judith Basin. Twenty thousand fat beeves were shipped from Billings Station by the Northern Pacific Railway in 1883, and in 1884 the shipments will be nearly doubled.

The town is the center of the fertile Clark's Fork bottom, which embraces an area of 120,000 acres of as fine agricultural land as can be found in the Territory. This bottom is irrigated by a large ditch twenty feet wide, four feet deep and thirty-nine miles long, bringing the water from the Yellowstone river at Young's Point, and emptying again into the river near Billings. An inexhaustible supply of building stone and brick clay is found in that vicinity. Three newspapers, The JOURNAL, The HERALD and The RUSTLER.



LEADING MINES

AND

REDUCTION WORKS.

The mineral wealth of the Territory, the most important factor of its prosperity, is found almost wholly in the Rocky Mountain range, which extends from Northwest to Southeast. On the south the mineral lodes and deposits first occur in Madison County; the next extensive mineral section is found in central Beaverhead County, in the Glendale, Blue Wing and Argenta districts, from which the mineral belt may be traced, with but few breaks, to the great Summit Valley mining district, which includes Butte. Forty miles westward, in a spur of the main range, is situated the famous Cable gold mine; Near it the Pyrenees. Wonderful specimens of both of these mines may be found on exhibition. Fifteen miles further on lies the rich district of Philipsburg. Eastward of Silver Bow County the belt extends into the Cataract district, where as yet no important developments have been made, though some mines of great richness and rare promise are now undergoing development. Beyond it are the famous Boulder, Gregory and Wickes districts, where the Helena Mining and Reduction Company, one of the largest silver-lead Companies in the United States, and the Gregory Company, are working several of the most productive properties in the Territory. Forty miles northwest, in the same great mountain range, are the Drum Lumon, Gloster, Blue Bird, Albion, Homestake, and other celebrated mines. In northern Montana are some exceedingly rich gold and silver mines now being actively worked; the Barker, Neihart and Maiden districts are among the most prominent. The following is a conservative estimate of the product of the Territory, by Counties:

Lewis and Clarke and Jefferson	\$ 4,000,000
Silver Bow	16,000,000
Beaverhead	2,000,000
Deer Lodge	500,000
Meagher	250,000
Choteau	200,000

Gallatin, including Coal	150,000
Madison, including Placers	300,000
Other Counties	50,000
Total	\$23,450,000

SILVER BOW.

BUTTE.

The mines within a radius of three miles of Butte produced during the year 1884 more money than Arizona, Nevada or California; more than twice as much as Utah; more than Idaho and New Mexico combined, and almost as much as Colorado. In no part of the world is mining prosecuted on a more extensive scale or with better results than at Butte. The capabilities of ore production seem to increase with development, and this fact is best illustrated by the extensive additions recently made to the Anaconda, Parrott, Montana, Colusa and Clark's Colusa concentrating and smelting plants. The quantity of copper ore shipped and treated in Butte in 1884 was fully twice as large as that of the previous year. The silver mining interests of Butte never looked as well as now. The Lexington, Moulton and Alice are now enrolled among the list of regular dividend payers, and a score of smaller mines, some of which are destined to become noted, are paying handsome profits to private investors. No other mining camp gives employment to more miners, and in no other place do the disbursements for wages reach a larger sum. The monthly pay rolls of eight of the leading Companies aggregate as follows: Anaconda, \$150,000; Lexington, \$50,000; Parrott, \$40,000; Colorado, \$35,000; Moulton, \$30,000; Alice, \$50,000; Montana, \$55,000; Silver Bow, Bell and Dexter, \$60,000; Miscellaneous, \$150,000; or a total of \$620,000. These are eloquent figures in proof of the richness, extent and permanency of the Butte mines.

STEAM HOISTING WORKS.

One of the very best evidences of the faith which the people of Butte entertain in the value of the mines is the amount of money expended in the importation and erection of steam hoisting works. Heavy boilers and engines are in place on nearly all the following named mines, all of which are properties of ascertained richness: Shaft of the Alice, 800 feet; Lexington, 650; Bell, 500; Gagnon, 600; Original Butte, 300; Anaconda, 800; Andy Johnson, 100; Salvador, 260; Mountain Boy, 300; Star West, 400; Colusa, 600; Gray Rock, 300; Vulcan, 130; Magna Charta, 600; Stevens, 200; Moulton, 500; Parrott, 350; Original, 400; Morning Star, 200; Isele, 200; Cora, 200; Belle of Butte, 400; Clear Grit, 400; Late Acquisition, 300; Modoc Extension, 200; Wabash, 100; Sheridan, 100; Shonbar, 325; Wild Bill, 150; Gold-

smith No. 2, 100; Liquidator, 200; Clark's Colusa, 400; Mountain View, 600; Washoe, 212; Neptune, 200; Pollock, 100; St. Lawrence, 650; Ramsdell Parrott, 260; Shakespeare, 260; Clark's Fraction, 300; Mohawk, 125; Valdemere, 300; Poser, 200; Parrott, 300; Orphan Girl, 160; Silver Safe, 150; Original, 400; Elm Orlu, 80; Gambetta, 80; Adelaide, 200; Sunny Side, 130; Gold Flint, 160; Margaret, 100; Diamond, 160; High Ore, 160; Rock Island, 150.

About 40 cars, containing 400 tons of copper ore and matte, daily leave the Butte depot destined either for Baltimore or Liverpool and Swansea. The five concentrators and smelters of Butte daily treat ore as follows: Anaconda, 500 tons; Parrott, 300; Colusa, 300; Colorado, 75; Clark's Colusa, 150; Bell, 50; or an aggregate of 1,375 tons. Copper mines not connected with reduction works produce ore daily, as follows: Liquidator, 100 tons; Mountain View, 50; Ramsdell Parrott, 25; and other mines (estimated) 75, or a total of 250 tons. The silver mills are treating ore daily as follows: Alice, 90 tons; Lexington, 50; Moulton, 40; Silver Bow, 30; Dexter, 30; Old Lexington, 10; making a grand total of ore handled daily in Butte of 1,875 tons.

THE LODE SYSTEMS.

Perhaps the most remarkable feature of the great lodes of Butte is their uniformity in all essential particulars. South of the Rainbow the dip of the lodes is invariably to the south, and the rich ores lie in shoots at somewhat irregular distances.

There are four mineral belts or parent lodes in the district, with a trend almost due east and west. On the north is the Rainbow, on which are located the Goldsmith No. 2, Rising Sun, Silver Safe, Amy, Silversmith, Moulton, Alice, Clark's Fraction, Magna Charta, Valdemere, Poser, Elm Orlu and Black Rock. Next, about 1,000 feet south, is a double series of prominent mines; the Lexington, Allie Brown, Josephine, Burnett, Mountain, Wake-up Jim, Bell, Grey Rock, Rock Island and others. Still further south is the great copper belt on which are located the Original Butte, Gagnon, Original, Parrott, Anaconda, St. Lawrence, Mountain View, and others of less magnitude and development. The fourth, or southern system, forms a part of what is called the Black Chief fissure, which is of vast extent though undeveloped. Running almost parallel with these four great lode systems are hundreds of claims of less extent, but of greater richness as far as they have been explored. In the district of Butte 4,000 claims have been located.

CHARACTER OF COUNTRY ROCK AND ORE.

The ore occurs in fissure veins of wonderful strength and regularity, in a granite country rock. These lodes may be traced over long distances by their prominent outcroppings. They vary in width from three to fifty feet, the Original, Anaconda, St. Lawrence and Mountain View being exceptionally wide. The pay streaks measure from two to six feet in width as a rule, and nearly all the lodes down

to water level, which varies from twenty to fifty feet, are decomposed to such an extent as to render the ores friable and easily worked. In some of the copper mines the surface ores carried only a low grade of silver bearing rock and little copper above the water level, while below water so far as explorations have yet been carried the ores are partially oxydized, which accounts for the high percentage of copper they contain and renders them easy of reduction. The ores may be graded into four classes; milling, smelting, concentrating and shipping. The first is stamped dry, chloridized and amalgamated, and averages in value about \$40 per ton. The second carries from twenty to thirty per cent. of copper, and some of them from \$15 to \$60 per ton in silver, and is first calcined and then smelted to a 60 per cent. matte. The third assays from ten to eighteen per cent. copper, and the fourth is a high grade copper ore, sometimes carrying silver. This is shipped in a crude state to Baltimore or England, and carries from thirty to forty per cent. copper. Under the reduced schedule rates recently adopted by the Union Pacific Company, it is possible to profitably ship copper ore carrying over twenty-five per cent. The cost to England is about \$26 per ton, and this is likely to be still further reduced.

THE MOULTON.

This mine adjoins the Alice on the west. It is developed by a three-compartment vertical shaft 500 feet deep, and is equipped with the most improved hoisting machinery and the only Cornish pump in the Territory. The claim is traversed by three separate and distinct lodes. The middle one has been developed by drifts from the 200, 300 and 400 foot stations for a total length of 1,000 feet. The stopes have produced during the past year an average of 40 tons of ore daily, assaying about \$40 a ton. The 500 foot west drift is 1,000 feet long and for the most part in ore. The Moulton mill is one of the most perfect structures of its kind. The two 40-inch Howell cylinders chloridize the ore to a high percentage, and the "savings" vary between eighty-six and ninety-two per cent. The bullion is uniformly 750 fine, and the product for the year 1883 was \$376,684.20. For the year 1884 the increase was almost 100 per cent., being not less than \$600,000, according to the shipments of the first ten months. During the year 1884 three dividends have been declared, aggregating \$80,000. The Moulton is a Montana corporation, having a capital stock of \$2,000,000, divided into 400,000 shares of \$5 each. W. A. Clark President and General Manager of the Company.

BELL.

This claim is developed to a depth of 500 feet, the vein varying from eight to twenty-three feet in width, and has been a steady producer of good ore for seven years past. It is the richest copper-silver mine in the district. The ore, now being extracted at the rate of twenty-five to forty tons a day, carries about twenty-five ounces of silver and twenty per cent. copper.

The smelter is located in the valley about two miles from Butte and two and a half miles from the mine. It is a well built, substantial structure, and contains two 30-ton blast furnaces. A concentrator capable of treating daily fifty tons of ore is attached. During the past year but one furnace has been running, and 800 tons of ore per month has been the average quantity reduced. The output of the smelter in 1884 is estimated at \$450,000, based on the product of the first ten months. The mine is incorporated with a capital stock of \$4,000,000, divided into 400,000 shares of \$10 each. James King is President of the Company and General Manager.

ALICE COMPANY.

The principal ore-producers of this corporation are the Alice and Magna Charta. The former is developed to a depth of 800 feet, and during the last four years, in connection with the Magna Charta, adjoining it, has produced \$4,000,000. The main vein dips to the north and varies in width from 40 to 60 feet. On the 400 foot level the pay ore was for a short distance thirty feet wide. The Alice properties are now producing an average of 2,400 tons of ore per month, carrying from thirty to forty ounces silver per ton. The Magna Charta is 600 feet deep and is producing sixty tons of ore daily. The Company is operating two mills, one of sixty and the other twenty stamps, both fitted up with all approved modern appliances. During the past four years the Company has paid in dividends \$500,000, and is now paying \$50,000 dividends each quarter. The controlling interest of this Company is owned by Messrs. Walker Bros., of Salt Lake City. J. R. Walker is President.

COLUSA.

The Montana Copper Company, owners of this property, have developed it to a depth of 600 feet by a three-compartment shaft. For four years it has maintained a steady production of 125 tons of ore per day. The vein has an average width of eighteen feet, and has been explored on the 200, 300 and 400 foot levels for a distance of 800 to 1,000 feet each, exposing several ore shoots of great extent. The copper contents average about twenty per cent. The smelting plant of the Company consists of ten calciners, six matting furnaces and one blast furnace. Seventy-five tons of low grade ore are daily concentrated. The plant is now being enlarged and will soon have the capacity to treat 150 tons daily. During the year 1883 the Montana Copper Company's works have produced twenty-eight tons of matte per day, which has averaged 65 per cent. copper and \$50 silver. The total production for the year was 9,800 tons, or 6,374 tons of pure copper, worth at 14 cents per pound \$1,784,720. The silver valuation of the same was \$318,700, making the total value of the year's work \$2,103,420, less the cost of refining and separation. The product of 1884 will show a large increase.

CLARK'S COLUSA.

This mine was purchased by W. A. Clark, its present owner, in

1872, in which year he sunk a shaft on it about fifty feet deep and shipped a car load of the ore to Baltimore for treatment. The ore was hauled in wagons to Corinne, and although containing over thirty-five per cent. of copper, the excessive transportation charges prevented further working of the mine at that time. In 1882 work was resumed, and a vertical two-compartment shaft was begun, which has since reached a depth of 300 feet, and sinking is still in progress. The present output is about 150 tons per day. Of this amount about twenty tons is first class ore, carrying thirty-five to forty per cent. copper, thirty tons second class, carrying twenty-four per cent., and 100 tons third class, carrying fifteen per cent. The present hoisting machinery is only worked to half its capacity. An automatic tramway 1,300 feet long connects the mine with the new concentrating and smelting works. The present capacity of the concentrator is 130 tons, and of the smelter seventy-five tons per day. The necessity for the enlargement of the works is already apparent.

The vein in the Colusa is about fifty feet wide, and in many places the pay ore is thirty to forty feet in width. Careful estimates show that there is now in sight, above the 300 foot level, at least 150,000 tons of the several grades of ore which is now ready for extraction.

PARROTT.

With the exception of the Anaconda the Parrott is the most extensive copper mining and smelting enterprise in the West. The mine is systematically developed to a depth of 350 feet. From the bottom of the shaft cross cuts extend to the north and south veins, along which for a total length of 400 feet drifts, east and west, have been run, exposing ore varying in width from eight to twenty feet and containing an average of thirteen per cent. copper. The output of the mine, which is 300 tons daily, will soon be increased to 400 tons. The concentrators and smelters are model structures. The former is equipped with jigs, Frue vanners and Rittinger tables, and the smelter has twelve calciners, six matting furnaces and one blast furnace. Within the past season the capacity of the works has been doubled. In the month of September 1884, before the new concentrator and blast were started, the matte output was 1,418,975 pounds, containing 885,957 pounds of pure copper. The total matte output for the year was 14,856,323 pounds, containing 9,324,805 pounds of pure copper, the value of which, adding the silver contents, was about \$1,250,000. This Company is a close corporation with a capital stock of \$1,200,000, divided into 120,000 shares of \$10 each. Franklin Farrell, of Ansonia, Conn., is President.

MAGNA CHARTA.

This mine is west of the Alice and separated from it by the Fraction claim. It has a vertical shaft 600 feet deep and contains four separate and distinct lodes, of which three are south and one is north of the shaft, all of which are worked, and the aggregate production is

about sixty-five tons a day, which has been about the average output for over a year past, or since the Alice yield began to be diminished. The different veins are so distinct in the Magna Charta as to render necessary a number of levels at the same depth and greatly increase the cost of development. Despite this drawback, however, it is an exceedingly productive mine, and is considered a very valuable property.

MOUNTAIN VIEW.

The shaft of this mine is 600 feet deep. The 500 foot cross cut was driven through vein matter for over 100 feet, a portion of which contained concentrating ore with occasional streaks of copper glance.

The 500 foot north cross cut shows the north vein to be sixty feet wide. In the face of the east drift of this vein a breast of ore is exposed sixteen feet in width, carrying eighteen per cent. copper, a considerable portion of which is of a grade high enough to ship. The cross cut in the 600 foot level has not yet penetrated either of these veins. The ore on the dump is estimated at 15,000 tons, of a grade susceptible of concentration. The Mountain View is an extension of the Anaconda and St. Lawrence mines, and the Colusa to the eastward is on the same vein. C. X. Larabie owns the Mountain View.

LEXINGTON.

The recent declaration by the Lexington Company of dividend No. 3, aggregating in American money about \$165,000, which was preceded by two others, one of \$80,000 declared in February, and one of \$250,000 declared last summer, has brought the Lexington mine into deserved prominence. The lode, as far as exposed, contains three ore shoots, one east and one west of the shaft, and the third about midway between, and they are all remarkably uniform. The one east is 200 feet long, the middle 250 and the west 200. This mine was purchased from Mr. A. J. Davis by a French Company, which has developed it to the depth of 650 feet. The ore production of the Lexington is about 1850 tons per month, or sixty tons per day, of which eight tons comes from a north vein known as the Allie Brown. The width of the pay ore averages about three feet, and the quartz is solid and clean and of a refractory character, like all the silver-bearing ores in this district below water. The great and distinguishing feature of the ore bodies is their regularity.

The Company's mill is in prime condition, and with sixty stamps, ten of which are employed on salt, it is daily treating sixty tons of ore and producing bullion at the rate of between \$90,000 and \$100,000 per month, estimating silver at what the Company gets for it, about \$1.05. The head office of the Company is in Paris. A. Wartenweiler is General Manager.

ORIGINAL.

This mine adjoins the Gagnon on the east, and is owned by a stock company of which W. A. Clark is President. Its shaft is the

oldest in the district, having been sunk to a depth of ninety feet in 1864. It is now 400 feet deep, and the extraction of ore from the 300 and 400 foot levels progresses steadily though not with a large force, and its output, which in general characteristics resembles the Gagnon, is treated at the Colorado smelter. This mine has paid thirty-two consecutive dividends of \$3,000 each, or \$96,000 within thirty-two months last past.

ORPHAN GIRL.

During the summer and autumn of 1884 this mine supplied the fifteen-stamp Dexter mill with thirty tons of free ore daily, the bulk of which was extracted from above the water level. The pay shoot proved to be 300 feet long and from twelve to twenty-five feet wide, and all of it of workable quality. During the last seven months of the year the bullion product was \$249,000, of which \$165,000 was clear profit. Exploration below water level is now actively progressing with excellent results. Wallace, Moffit & Co. are the lessees.

GAGNON.

A dozen men have made themselves rich out of the Gagnon. It is one of the oldest mines in the camp, and has produced since 1876 over 100,000 tons of ore, its present product being forty tons per day. The vein is forty feet wide and the ore assays \$40 to \$100 per ton as a rule and carries about eight per cent. of copper. Its shaft is 600 feet deep and levels east and west have been extended at intervals of 100 feet. It is owned and operated by J. C. C. Thornton, W. A. Clark and others.

POSER.

During 1884 fully 3,000 tons of \$35 ore has been extracted from this mine, which embraces a section of the famous Rainbow lode. The vein is from twelve to twenty-five feet wide, and though its product is generally of low grade, a rich streak assaying from \$75 to \$100 per ton, and having a width of three feet, extends through the entire length of the claim. The shaft is 200 feet deep, and development is vigorously prosecuted by its owners, A. W. Barnard and others.

MARIA.

The main shaft of this mine is 150 feet deep. The levels have been run from which, during the past year, ore valued at \$65,000 has been taken. The pay streak is from one to three feet wide, and is regular and continuous. The silver occurs in the ore as a sulphide, and assays from \$75 to \$500 per ton—its average value being \$150. Larmour Bros. are owners.

LIQUIDATOR.

For the past year the daily product of this mine has averaged 100 tons of copper ore, the first class assaying from thirty to forty per cent. and the second class twenty to twenty-five per cent., and these grades have either been shipped or smelted under contract, while the

low grade ore has been allowed to accumulate on the dump until fully 20,000 tons are on hand, averaging fifteen per cent., valued at \$100,000. Three levels have been run in the Liquidator from a three-compartment shaft 300 feet deep, and the pay ore in places is forty feet wide. A breast of ore twenty feet wide is now being extracted. The location adjoins the Colusa on the west and is an extension of that great lode.

CLEAR GRIT.

In 1872 this was known as a rich and productive silver mine, but it has since developed into a great copper property. Its shaft is 317 feet deep and the lower level for a distance of several hundred feet has penetrated a vast body of low grade copper ore, with occasional seams of very high grade silver-copper ore, assaying in the former as high as \$300 per ton, and in the latter forty-five per cent. On the lower level the distance between the walls is forty feet. H. C. Kessler is Manager.

SILVER BOW COMPANY.

Among the properties of this Company are the La Plata, Mount Moriah, Gray Rock and Josephine, the last two of which are now worked, and are producing forty tons of \$40 ore daily. These veins are extensive, strong and well defined, and their present output could be easily doubled if the milling facilities of the Company were such as to justify the employment of an increased working force. The mill contains thirty stamps and one forty-inch White-Howell furnace, which during the past year has done excellent work. Considerable custom ore has been treated. These properties are owned by A. J. Davis.

OTHER MINES.

Among other prominent mines of the Butte district represented in the Montana collection of minerals at the World's Fair, but for which no room could be spared for description in detail, may be mentioned the following:

Silver Safe, extension of Moulton, shaft 150 feet deep, pay ore three feet wide, assay \$100 to \$150, owned by W. A. Clark and others.

Stevens, shaft 200 feet deep, vein ten feet wide, has produced \$200,000, incorporated, A. Wartenweiler President.

Clark's Fraction, east extension of Alice, developed 300 feet in depth by two-compartment shaft, ore averages \$40 per ton, owned by W. A. Clark.

Ramsdell Parrott, shaft 300 feet deep, vein of copper ore sixteen feet wide, daily product twenty-five tons, assay twenty per cent. copper, Joseph Ramsdell owner.

Rock Island, shaft 150 feet, daily product twenty tons free silver ore, assay \$100 per ton by bucket sample.

Add to the above: Late Acquisition, Sunnyside, Bonanza, Amy, Silversmith, Sheridan, Isele, Valley, Mountain, Florida, Florinda,

Elvina, Original Butte (with 300 foot shaft and costly plant), Shespeare and many others which have been actively worked. They are not all great mines, but most of them are of conceded value and rare promise.

In conclusion it may be stated that as far as general and achieved results are concerned, no camp on any Continent will compare with peerless Butte in the magnitude, permanence, richness and productiveness of its mines. The silver, copper and gold output of the district in 1884, based on the production of the first ten months, was \$16,500,000. The copper produced during 1884 approximated 40,000,000 pounds.

DEER LODGE.

CABLE.

This is one of the richest gold mines on the Continent. Though never operated on a scale commensurate with its magnitude, it has produced over \$1,000,000, and conservative men estimate that on and above the 300 foot level the value of the ore in sight is not less than \$1,500,000. No mine has produced richer specimen of gold ore. The value of the exhibit sent to the World's Exposition is \$10,000, one sample alone being worth \$3,700. The mine is developed mainly by a tunnel, which taps the lode at a depth of 300 feet, where the pay ore body has the remarkable width of forty feet. Drifts have been extended 100 feet east and west, and cross cuts run which show that the ore is continuous and uniform in grade. Its average assay value is \$18, with occasional large pockets of almost pure gold, and wide streaks assaying from \$100 to \$1,000 per ton. A twenty-stamp mill, complete in every detail, is in constant operation. The cost of reduction is less than two dollars per ton. The property is owned in Des Moines, Iowa, by well known citizens, whom it has made rich. J. C. Savery, one of the principal owners, is Superintendent.

GRANITE MOUNTAIN.

This is the richest silver mine in Montana. It is stocked at \$1,000,000, and is owned by St. Louis capitalists. It is located on the western slope of the Granite range, and from the precipitous nature of the location is admirably situated for exploration, to a great depth, through adit levels. The strike conforms to that noted in the lime fissures of the same district, and the dip is about the same, 70 degrees. The ore bodies, occurring at intervals in the mine, are generally from 150 to 200 feet in length, varying in width from six to twenty feet. All of these immense deposits show an undisturbed foot-wall, with the best ore next to the casing. The hanging wall is generally broken and displaced. The development consists of three tunnels, connected

by winzes, the face of the lower having attained a perpendicular depth of 700 feet.

Tunnel No. 4 is now in over 700 feet, and with the aid of Burleigh drills has recently penetrated the rich chimneys found in the level above. The veinstone is a very hard quartz, carrying ruby and native silver with oxide of manganese, antimony, zinc and arsenic. The reduction is by dry crushing, chlorination and amalgamation. Quite recently 1,500 tons of this rock was worked, at the Algonquin mill, by contract. The yield of silver exceeded \$300,000 in value, and such was the consumption of quicksilver in amalgamation that the contractors lost money through not being able to keep a large supply on hand. In several instances the mullers would stop of their own accord, the belts not being able to displace the amalgam gathered on the shoes, dies and the sides of the pans. Careful estimates have placed the amount of ore yet untouched in the mine, whence this was taken, at 200,000 tons.

A twenty-stamp chloridizing mill, with all modern facilities to insure the economical treatment of the ore, has just been completed and is now in successful operation. The mine, which now shows over 4,000 feet of tunnel work, is being developed by Burleigh drills and other improved appliances. The Company, after liquidating a heavy indebtedness and paying all expenses of mill building and mine development, has a handsome cash balance on hand. J. R. Lionberger, of St. Louis, Mo., is President, and Frank L. Perkins Superintendent.

PRINCETON.

This property is located at Medhurst and is owned by French capitalists. It is developed by a shaft 200 feet in depth. The ledge is very extensive, the product assaying about \$40 in silver. During the year 1885 a twenty-stamp mill will be erected, expensive and powerful machinery has already been placed in position, and no time will be lost in sinking the shaft to the 500 foot station. The Company employs fifty men.

PYRENEES.

The Pyrenees is one of the oldest mines in the County of Deer Lodge. It is owned by Salton Cameron, who has worked it continuously for ten years. The product is treated in a five-stamp gold mill. The workings show a vein of pay ore similar in general characteristics to that of the Cable, of which mine it is believed to be an extension. The ore body varies in width from five to twelve feet, and samples in the mill about \$15 per ton.

LEWIS AND CLARKE.

DRUM LUMON.

At the time the new management assumed charge, the Drum

Lumon was developed only by the Cruse tunnel, which intersected the lode at a distance of 500 feet from its mouth and at a vertical depth from the apex of the lode of 150 feet, at which point the ore body was found to be eighty feet wide between walls. Such development of mineral has never before been made in Montana.

The only facilities which then existed for the treatment of the product of this vast lode was a five-stamp mill, constructed on a primitive plan, and in which it was impossible to extract from the ore more than fifty per cent. of its gold value, the silver being all lost. The new Superintendent increased the number of stamps to ten, and for a year operated them successfully. In the meantime a tunnel was started to tap the lode at a depth of 500 feet. To prosecute this great enterprise expensive and powerful machinery was imported and placed in position, and with air compressors and Ingersoll drills the work was continued until, at a distance from the mouth of the tunnel of 1,300 feet, the foot-wall of the lode was encountered. Good ore was struck, and operations were continued until the hanging wall was reached, where the vein of workable ore was found to be over fifty feet wide. A drift was then started west, which at a distance of 100 feet was connected with a winze sunk from a drift of the Cruse tunnel level, and which exposed good ore all the way down. The cross cuts, extended to the hanging wall from different points in the winze, showed the pay ore on that side of the vein to be over twenty feet wide.

So encouraging were the results of these important explorations that a fifty-stamp mill, the erection of which was contingent on the successful result of development, was at once determined upon. Accordingly, very early in the spring of 1884 a mill building was constructed with a capacity of fifty stamps, though at first only twenty were put in place. These were dropped for the first time in May, and soon afterwards the other thirty stamps were added.

The mill is a model structure, fitted up with all the modern improvements. The machinery is first class, the pan and settler capacity ample and the location is such that the ore requires very little handling. The mill is situated just below the mouth of the Maskeylyne or main tunnel, from which in the near future the entire product of the mine will be supplied, and all the facilities necessary have been supplied to insure not only the cheap handling of the ore but its inexpensive reduction. Should the ore in the lower workings be found too base for free milling, roasters or chloridizing furnaces can be readily added.

Up to November 1884 regular bullion shipments were made, which indicated that the average value of the product of the mine was about \$25 per ton, allowing for a twenty per cent. loss in working, which can not be prevented at present, owing to the peculiar character of the ore. The Superintendent, however, is experimenting to reduce the percentage of loss, and will doubtless succeed.

The two mills of the Company now reduce daily an average of 150 tons of ore, but as yet no visible impression has been made on the vast reserves in the mine, in which it is estimated there is enough ore in sight to supply the sixty stamps of the Company for two years without further exploration. The mine is owned chiefly by English capitalists, who bought it two years ago, paying therefor \$750,000 in cash and \$1,500,000 in stock to Thomas Cruse, its former sole owner. It is capitalized at £600,000, or in American money at \$3,000,000, divided into 300,000 shares, having a par value of \$10 each. The head office is in London. N. Story Maskelyne, M. P., of London, is President. James Johnston, also of London, is Secretary. The General Manager is Geo. Attwood, whose office is at the mine in Marysville, Montana.

GLOSTER.

This mine is located twenty-seven miles west of Helena. It is developed by a three-compartment vertical shaft to a depth of 400 feet. At intervals of 100 feet levels have been run east and west, each 1,000 feet in length, exposing an ore shoot having an average width of ten feet and assaying \$20 per ton in gold and silver. From the 400 foot west drift a winze has been sunk to a depth of seventy-five feet, showing in the bottom an ore body fourteen feet wide between well defined walls of granite.

The ore is extracted from a regular system of stopes, in which there are 136 faces, each affording room for three miners. The present output of the mine is 150 tons daily, which amount could readily be duplicated if the Company had increased milling facilities. The product of the Gloster is worked in a sixty-stamp free silver mill, containing twenty-four pans, twelve settlers, fifty-six tanks, four boilers and two 250 h. p. engines. The building at night is illuminated by fifteen electric lights.

The monthly bullion shipments average \$50,000, mostly gold. The savings amount to about eighty per cent. of the assay value of the ore. The mine and the mill, which are about half a mile apart, are connected by a T-rail tramway, over which the ore is transported for five cents per ton. The capital stock of the Company is \$2,000,000, divided into 200,000 shares of \$10 each. The head office of the Company is in New York. E. F. Child, of Boston, President, H. W. Child, of Helena, General Manager.

LEXINGTON.

Though not extensively developed the Lexington has a wonderful record, considering the amount of money expended on it, and has produced richer ore than any other property in the County. Some time ago a four ton shipment was made to an eastern smelter, which netted over \$4,000 per ton. One hundred tons were subsequently shipped to the Wickes smelter, which also returned enormous profits. The silver occurs as a chloride, or what is called horn silver. The

specimens sent to the Exposition average in assay value from \$15,000 to \$20,000 per ton, and will excite much admiration among those versed in the subject of silver mining. They will also serve to indicate to the visitors that while the majority of Montana's most prominent, productive and profitable mines are of low grade, there are some ledges within its boundaries which, in the richness of their product, have no superiors in the world.

WHITLACH UNION.

For many years this mine, situated at Unionville in the vicinity of Helena, was the most celebrated gold mine in the Territory. It is credited with an output of \$4,000,000, and nearly all who are acquainted with it are satisfied that the vein where lost can be found and the grand record of its productiveness be continued in its future history. From lithologic indications there is no doubt that the Union fissure is the older one, and that at a later period a massive lode formerly called the Leviathan (now in part patented under the names of the Big and the Little Muddy) was thrown up, on an opposing dip and nearly similar strike, through the earth's crust and so severed and displaced the Union as to make it a very serious problem where to seek the recovery of the intersected and lost vein. In the portion of the lode where the inclines had not reached the deeper portion of the intersection of the two lodes there is still good ore in sight, but it was deemed best to leave it there, rather than extract it under then existing disadvantages, until an attempt be made to solve the problem of the lost lode. Probably a condition precedent to this work would be the consolidation of the various ownerships. The principal, and the hitherto richest, portion of the lode is owned by the National Mining and Exploring Company of New York, which was organized in 1865 for work in Montana.

PARK LODS.

Immediately beyond and to the south of Unionville lies Park City, in which there are a number of gold lodes, apparently continuations of the Union fissure, the Park lode, owned by the Columbia Mining Company being the most prominent. Much rich ore has been taken out of the Park City mines. The Pedro Mining Company took \$120,000 gold from their claim in less than nine months. The placers in this camp have yielded a considerable amount of gold and are still worked.

RED MOUNTAIN LODS.

The mines of Red Mountain are distant from the City of Helena about eighteen miles. This mineral field covers an area of about twelve miles square, and contains vast deposits of gold, silver, copper, lead and tin. The district was discovered about twenty years ago, and there are now nearly three hundred mineral locations, and it may be truthfully said that it is the most important undeveloped mineral



RED MOUNTAIN.—(From Sketch by Det. Groge.)

field in Montana, or even in the United States. There are in this mountain vast quantities of low grade silver ore, besides many lodes that carry very high grade ore, the entire mountain being thickly seamed with true fissure veins. The Red Mountain mining district is also justly famed for its matchless beauty of scenery, being unsurpassed in this respect. In this connection Mr. A. M. Williams, editor of the "*Montana Stock and Mining Journal*," published at Helena, says of it: "The first sight of Red Mountain, as it suddenly bursts upon you, gazed at from the depths of Ten-mile canyon, has a very Gibraltar-like appearance. For a distance of perhaps 500 feet down from its summit, it is covered, to a depth of six or eight feet, with a slide of jagged volcanic shale, of a decided reddish tinge, and as viewed through the crystal atmosphere of Montana gives the mountain an appearance somewhat resembling a huge deposit of red ochre. But strictly speaking, in point of scenic beauty, if one cares for that, and who among us is so unpoetic that he falls entirely to grasp the beautiful in nature, Red Mountain and its surroundings probably excel that of any other camp in Montana. The beautiful Beaver Creek leaping from its dizzy height, through its narrow, rocky defile, to a commingling with the waters of the Ten-mile, at the very foot of Red Mountain, presents a study worthy of the pencil of the greatest artist the world can produce. Switzerland, under treatment of the most enthusiastic writer, cannot furnish a more beautiful picture, and the entire canyon of the Ten-mile, from the Hot Springs, near Helena, to the source of the stream at Red Mountain, is one grand kaleidoscope of ever-changing grandeur, baffling the power of pen to describe. A good and natural wagon road leads from Helena to the mines, through the canyon, unfolding its great beauties at each turn, in an atmosphere laden with the perfume of countless thousands of blossoming flowers, as one might turn the pages of an intensely interesting book inspired by some favorite author."

The number of official surveys of lodes on Red Mountain, and United States patents issued therefor, exceed that of any other district in Montana with the exception of Butte.

THE FIRST CONCENTRATOR.

The first real move towards the development of the Red Mountain country has been the erection, by Messrs. Murphy, Churchill & Buchanan, of a concentrator, a model one in its way, during the summer just passed, constructed by and under the supervision of the inventor and patentee of most of the machinery, Mr. C. G. Buchanan. The works contain one Buchanan crusher, daily capacity of 100 tons; one set of Buchanan 30-inch high speed rolls, capable of making 200 revolutions per minute, and a capacity of 100 tons per day; one set Buchanan 24-inch rolls, for fine crushing, with a daily capacity of fifty tons. There are three-compartment jigs and Golden Gate Tables, with a capacity of fifty tons ore per day. The concentrator is now

running night and day, having been started up for the winters' run on the 31st of December last.

In the early spring a smelter will be built at Red Mountain, and thus the foundation will be laid, so to speak, for a permanent and prosperous mining camp, whose bullion product is destined, at no distant day, to very materially swell the figures in the grand total of Montana's gold and silver output.

Up to date only a very few of the mines at Red Mountain have been developed, chief among which may be mentioned the

PACIFIC LODGE.

On this property a shaft has been sunk 130 feet deep, and a tunnel run in a five foot vein of ore for a distance of 350 feet. From the shaft a level has been run sixty feet, in a wonderfully large and rich body of gray copper ore, assaying about 160 ounces to the ton, on an average, and in some places a great deal more. There are two locations in connection with this property, known as the North and South Pacific. They are both well developed and are among the most valuable mines on the mountain. Over 3,500 tons of rich ore is piled on the dump awaiting treatment.

THE LEXINGTON.

This is a very handsomely developed mine. It has a tunnel 114 feet long, exposing a solid ore body, gray copper in character, running about 50 ounces to the ton. From the point where the tunnel pierces the mountain to its extreme length it runs in a solid body of ore seven feet wide, and the mine is capable of a very heavy output.

Many other mines might be mentioned as partially developed, and undergoing development, but a want of space forbids more than a mere mention of the more prominent ones, among which are the Merritt, Independence, Macawber, Little Sampson, Kiyus, Wanderer, Sallie Bell, the Vaughn mines, Nellie Grant, the S. P. and O. H. Bassett, Silver Cord, Coyne, and others.

DRY GULCH, ETC.

About two miles to the north-east of Unionville is Dry Gulch, in and near which are several promising mines, among them the Yellow Boy, owned by Constans & Springer, free milling ore \$13.50 gold per ton, vein sixteen feet wide, shaft seventy feet deep, at which depth drifts east and west of fifty feet each way have been run.

One mile north of Unionville is the Black Swan and Black Alder owned by several prominent citizens of Helena.

JEFFERSON.

HELENA MINING AND REDUCTION COMPANY.

S. T. HAUSER, PRESIDENT.

This Company acquired, by purchase, the property of the late Alta Montana Company. The following items are mainly taken from the Annual Report of the Company recently published. The works and most of the mines owned by the Company are situated at Wickes, which has recently been connected by rail with the City of Helena and the Northern Pacific Railroad.

It is now a little over a year since this Company was organized, commencing under the most discouraging circumstances; with but little working capital, and in the face of the fact that the Directors of the Company that formerly owned the bulk of the property, upon which this Company was formed, had lost over a half million dollars in the stock held and owned by them, and had, in the vain hope of keeping the old Company alive, advanced individually from \$500,000 to \$700,000. In addition, there was over \$250,000 of liens and mortgages on the property, held in the Territory. The Directors of the Alta Montana Company had done more than any other set of mining directors ever did, and being unable to make further sacrifices, the mortgages were foreclosed and the property sold in New York at public auction, subject to the \$250,000 liens and mortgages held here in the Territory. Purchasing the property and other expenditures left the present Company practically without any working capital.

Notwithstanding all these discouraging facts, they became satisfied that with money, a railroad to the property, proper works and proper management at the works, the Company could be made a success.

They believed the railroad an absolute necessity, and Mr. Seligman, of New York, (owner of the Gregory mine, situated about two and one-half miles from the works) joined in a proposition to the Northern Pacific Railroad Company, which resulted in the grading of the road, the Railroad Company agreeing to reimburse the cost in freights over the branch and main line. Under this arrangement the road was completed in December, 1883, connecting Helena and Wickes.

In September, 1883, John Longmaid was appointed General Superintendent of the Company, and John W. Buskett Secretary.

The new Company have rebuilt the entire works, and added largely to their capacity, costing \$190,667. Have increased the daily capacity of the 6-calciners from 25 tons to 8-calciners with 60 tons capacity. The "2" smelters from 40 tons capacity to 80 tons. Rebuilt the 15-stamp mill and increased it to 25 stamps, and added two new boilers. Rebuilt the Comet Concentrator and increased it from 35 tons to 120 tons. Built the Alta Concentrator, 150 tons capacity, giving a daily concentrating capacity of 270 tons; built six charcoal kilns of 25,000 bushels per month capacity; built \$5,000 worth of track in and about the works, and have nearly completed two miles of wire tramway, increased the water supply by laying pipe and adding pumps and tanks.

The various additions and improvements have not only increased the size and capacity of the works, but resulted in reducing the cost per ton of treating the ores from 30 to 50 per cent.

They have produced 2,015 tons of bullion, 15 tons of mill retort, 300 tons of matte, and shipped 1,453 tons of concentrates. (Balance, over 9,000 tons, were smelted) making a total gross value of \$941,033.

They have mined out of the Comet mine 21,000 tons; Alta, 13,000; making 34,000 tons taken out of the mines. The bottom of the 220-foot level of the Comet mine, after losing the vein for a short distance, has opened into one of the largest ore bodies in the mine, and the face of the tunnel and levels are in large bodies of ore. The faces of some eight or ten of the levels and tunnels in the Alta mine are in good ore. The bodies of ore reserves now in the mine measure sixty-five thousand tons, as against twenty-four thousand tons when they commenced work. At the Alta, one-half the entire force of men are employed in the work of development, and one-fourth in the Comet mine.

In the time named (a little over a year) a net profit of \$343,448 has been made over and above any and all expenses. This net profit has been used, or the greater portion, as follows:

Permanent Improvements	\$190,667 00
Wood, Coke and Supplies on hand.....	63,277 00
Tools and Implements	5,971 00
Developing North Pacific, Custer and other mines.....	21,000 00
	\$280,915 00
Balance cash on hand.....	62,533 00
As above.	\$343,448 00

Of the \$344,000 profit, \$269,560 was made since May 1 (six months, before which date the reduction works could not be put in tolerable working order) an average net profit of \$45,000 per month.

In the Report referred to the President says:

"The fact that under these disadvantages we have averaged for the past six months \$45,000 per month net, and that within two weeks our Huson tramway from the Comet mine, two miles over the hill to-

wards the works, will be finished and save \$3,000 per month, and that our charcoal kilns, now finished, will save us \$1,000 more per month, I feel safe in estimating that we will clear from \$45,000 to \$55,000 per month. With the bullion cashed, we have on hand \$63,000, and will have December 1st \$110,000. Therefore I recommend that the Board of Directors declare a monthly dividend of six cents per share, or \$36,000, which, in my opinion, will leave us a monthly surplus of from \$8,000 to \$12,000."

MINES.

THE ALTA.—Levels aggregating 2,171 feet have been recently run in this mine.

NORTH PACIFIC.—This mine has been idle for years, but is now in course of being cleaned out by means of a shaft and pumping works.

CUSTER.—A regular vein, with good walls, but not much ore in sight.

COMET.—A continuous body of ore 540 feet in length has been developed with every indication of a further extension in ore. At this mine a concentrator of 120 tons daily capacity is at work, which in 10 months has concentrated 20,644 tons, notwithstanding many delays and stoppages. A wire rope tramway conveys the ore two miles, saving \$2 per ton.

RUMLEY.—About 720 feet of levels have been run in this mine, opening only a quantity of ore ground about equal to that stoped out in same time. It is expected that cross-cutting will develop ore.

OUTPUT OF THE MINES, SEPT. 30th, 1883, TO SEPT. 30th, 1884.

	TONS.	
Comet Mine, Concentrating ore	20,650	
First class ore	111	
Carbonate ore	122	20,877
Concentrates	4,787	
Alta Mine, Smelting ore	441	
Concentrating ore	12,497	12,938
Concentrates	4,782	
Rumley Mine, Smelting ore.....	719	
Milling ore.....	3,478	4,197
North Pacific Mine, Concentrating ore.....		319
Custer Mine, Concentrating ore		110
Total quantity ore operated		38,441

COMPARATIVE STATEMENT OF ORE RESERVES AT THE TIME THE COMPANY COMMENCED OPERATIONS AND ON SEPTEMBER 30th, 1884.

	Sept. 30, 1883.		Sept. 30, 1884.
Comet.....	12,000 Tons.		45,000 Tons.
Alta.....	9,000 "		17,000 "
Rumley.....	3,000 "		3,000 "
Totals.....	24,000 "		65,000 "

GREGORY CONSOLIDATED.

This is a silver lode 23 miles south of Helena. Its development consists of two shafts 1,000 feet apart, and sunk to a depth of 700 feet, and connected on each level except the lowest, where drifting is actively progressing. Though the mine produces some high grade ore the bulk of its output is of a low grade, susceptible of easy and inexpensive concentration. In its crude state the latter assays 15 per cent. lead, \$12 in gold and from 10 to 100 ounces in silver, which is dressed to 35 per cent. lead, \$20 in gold and from 40 to 150 ounces in silver. The pay ore between the walls of the vein varies in width from 6 to 14 feet. The walls are smooth and regular, in granite, and the fissure is perfect. The concentrates before being smelted are put through reverberatory furnaces, and are then reduced to bullion assaying about \$350 per ton. A 600 ton run just completed netted the Company \$180,000. The smelter is producing 200 tons of bullion monthly. The enterprise is stocked at \$3,000,000 of 300,000 shares, \$10 each. Jesse W. Lilienthal, of New York, is President, and H. W. Child, of Helena, General Manager.

ELKHORN MINING COMPANY, "A. M. HOLTER" LODE.

This property, which is now a steady dividend payer, is developed by a 400-foot incline shaft from which the levels, each 150 feet in length, have been extended along the ledges exposing a continuous ore shoot the entire distance.

The pay ore body varies in width from 6 to 16 feet and is daily producing 25 tons of ore, which pulps \$60 silver in the mill. The latter is of 10 stamp capacity and is fitted up with one 40 inch cylinder, in which the ore is chloridized before amalgamation. The bullion product averages \$25,000 per month, from which regular dividends of \$5,000 per month are paid.

This Company has been in active operation for the last ten months, and during that time 3,304 tons of ore have been treated in their mill, and the net results have aggregated \$168,425.45, or a saving of about \$51 per ton of ore.

The bullion produced is about 700 fine in silver, with a little gold in it, the principal alloy being copper. This property is owned almost entirely by Helena parties. A. M. Holter, President. C. L. Vawter, Secretary and Manager. Geo. O. Kilbourne, Superintendent.

OTHER MINES IN THE VICINITY OF WICKES AND ELKHORN.

Eureka, about 400 feet west of the Helena Mining and Reduction Works, has a shaft 200 feet deep and a tunnel on the vein 500 feet in

length. The vein is one and one-half to two feet in width, carrying smelting and concentrating silver ore, some of which assays well up in the hundreds of oz. per ton. It is owned by A. M. Esler & Co.

Rocky Bar joins the Eureka on the north, has a shaft 50 feet deep and a tunnel 450 feet, 250 feet of which is on the vein, which is four feet wide, carrying silver ore, some of which assays from 50 to 300 oz. per ton. Owned by Wilson & Co.

Relief, located a quarter of a mile northeast of the Elkhorn mill, is a recent discovery, has a shaft 20 feet deep. Vein 12 feet wide, improving in depth both in width and quality. Carrying silver ore which gives assays of 50 to 100 oz. silver per ton. Owners, Spraggins & Crum.

Homestake is about three-quarters of a mile northwest from the Elkhorn mill, has a shaft 45 feet in depth. Vein four feet wide; ore assays up to 200 oz. per ton. Owners, M. Murphy & Co.

Union, about a mile northwest from Elkhorn mill; shaft 80 feet, tunnel 240 feet; both well timbered. Ore yields assays from 80 to 350 oz. per ton. Owners, Hahn & Jamieson.

Paymaster, located about 400 yards north of the Elkhorn mill, has two shafts 20 feet deep. Vein four to five feet in slate and dolomite. Ore assays as high as 125 oz. silver per ton and 35 per cent lead. Owned by Hahn & Jamieson.

C & D, about a mile northeast of the Elkhorn mill, shaft 40 feet in depth with a tunnel 38 feet. Vein 12 feet wide in a limestone formation; yields concentrating ores, and some assaying up to 125 oz. silver per ton. Owned by F. W. Crum & Co.

Dunston, about 600 yards northeast of the Elkhorn mill, on the east hill side; shaft now 38 feet in depth. Vein five feet wide; improving in depth both as to width and quality. Hanging and foot walls in dolomite. Concentrating ore, some assaying up to 200 oz. silver. Owners, Dunston & Crum.

James R. Keene, about 300 yards north of the Elkhorn mill, adjoining the "A. M. Holter" (the property of the Elkhorn Mining Co.,) has a shaft 90 feet deep with a drift 42 feet in length. Yielding ores that give high assays of both gold and silver. Hanging wall slate, foot wall dolomite. Owned by Jamieson & Nicholson.

Monte Christo, about 1,000 yards west of the Elkhorn mill; shaft 46 feet deep. Vein 10 feet wide in slate and granite formation. Ore carries 35 to 40 per cent. copper. Owned by Spraggins & Morrow.

Sophia, adjoining the Elkhorn mine on the southwest; two shafts 35 and 18 feet. Width of vein 15 feet, in dolomite; concentrating and milling ore, some assaying 50 to 90 oz. silver per ton. Owners, Whitlach, Bright & Co.

J. H. Shoeber, joining the A. M. Holter lode on the south; shaft

50 feet deep, with an incline from same 50 feet deeper to intersect the vein, which is three feet wide. Ore carries both gold and silver. Vein in slate and dolomite. Owned by T. T. Nicholson.

Mountain View, about a mile and a half north of the Elkhorn mill; has a tunnel run 30 feet on the vein, but no shaft. Width of vein three and one-half feet. Some of the ore carries 75 to 80 oz. silver and 32 to 40 per cent. lead. Vein in slate and syenite. Owned by Peter Thompson.

Luxemburg, about half a mile south of the Elkhorn mill; shaft 35 feet. Vein six feet wide, in granite. Ore carries gold, silver, copper and lead, some assays showing as high as \$600 to \$800 in gold. Owned by Scheyer & Co.

Mohawk, on Cataract creek, about two miles from its mouth. Has five shafts varying from fifteen to forty feet in depth, all showing the same character of ore. Vein in granite and eight feet wide. Ore carries silver and lead in paying quantities. Owned by Elder, Poor & Thompson.

Maud Thompson, about two miles west of the Comet and Rumley mines, and supposed a continuation of the same. Two shafts fifty and twenty feet deep. Only one wall (granite) found so far. Drift run fifteen feet from foot-wall across vein. Ore assays 30 to 230 ounces silver per ton, and carries some gold. Owned by Thompson, Poor & Co.

Minah, about a mile and a half northwest from Wickes. Three shafts 118, 65 and 35 feet deep, with drift from shaft to shaft. Vein in granite and five to six feet wide. Silver ore, also carrying considerable gold. Owned by C. Merriman & Co.

Solo, Monte Christo and Standard lodes are situated on Valparaiso Mountain, in an easterly direction from the Banner and Gregory mines. They carry silver, lead and copper, with some gold, and are developed by tunnels run to the vein which they cut at depths varying from 150 to 500 feet; also by shafts, varying from 12 to 50 feet in depth. The country rock is porphyry, granite and quartzite. Assays have been got from some of the ore as high as \$1,600 in silver, and as high as \$21 in gold, while the lead ores run as high as 54 per cent. Owned by C. Y. Anderson.

WASHINGTON, HENNEPIN, GLASGOW, LIVERPOOL, ETC.

Washington, located about eight miles southeast of Helena, to the north of the mouth of Lump creek, and shows a vein of ore about four feet wide bearing galena and silver. This ore is worth about \$100 per ton. The vein is opened for a distance of about 9,000 feet. The Tycoon, one of the locations on this vein, shows about six feet wide at the bottom of a 40 foot shaft. The Hennepin, Glasgow and Liverpool, are all locations on the same vein, all showing ore with pay

from \$60 to \$400 per ton. Timber and water is plenty and convenient and the vein crosses the Helena and Jefferson County branch of the Northern Pacific Railroad.

IRON AGE, CLEVELAND, ETC.

These mines are located about three miles east of Beaver creek, and about the same distance south of the Northern Pacific Railroad. The ore is an iron stained quartz, carrying free gold in good paying quantities. The vein is opened to the depth of 350 feet, and there is over 1,000 tons of ore on the dump. To the northwest of this mine, about 2,000 feet, is a vein about five feet in width, carrying carbonates of lead and silver, which is opened for several thousand feet, on which are the Cleveland, Freeman and other locations. W. T. McClintick is the owner of the Iron Age, and also of the Eclipse and Aurora, on which we have no reports.

BALD MOUNTAIN.

This District is in the northwestern corner of Jefferson County, and is the source of Basin and Cataract creeks, which flow southerly into the Boulder river; also of Clancy and Lump creeks, which flow easterly into Prickly Pear; also Ten Mile Creek, flowing northerly. This District is about 10 miles west of the Gregory mine and works.

The principal quartz veins in it, commencing at the north of Bald Mountain, is the Little Jennie, from which large shipments of ore have been made abroad, some of it yielding as high as \$1,100 per ton. The ore contains galena, zinc and grey copper, and the width of the vein between the walls is in some places, where it has been cross-cut, over 30 feet.

To the eastward, about one-half mile, is the General Garfield lode, the ore of which contains gold and iron pyrites. At the surface there are several thousand tons of free milling ore, mostly low grade.

Further up, near the summit of the mountain, is the Lucky Jim lode, carrying gold. Some of this ore is very rich, assaying as high as \$20,000 to the ton. About 80 feet from this vein, and running nearly parallel with it, is a silver vein of comparatively low grade ore. Both of these are strong, from 5 to 10 feet in width.

Passing to the east side of the mountain, at the head of Cataract creek, is the Climax lode, a gold bearing vein about three feet in width, carrying rich ore.

About 1,000 feet southerly is the Buckeye lode, carrying both gold and silver. The vein is from five to six feet wide, the ore containing about \$100 per ton.

On the south side of the mountain is the Sabine, Silver Grey and

Little Etta lodes, all containing good concentrating ore, and showing veins from four to ten feet wide.

About two miles east of the summit of Bald Mountain is located the vein on which are the Athens and Corinth claims, concentrating ore, rich in lead and averaging about five feet in width.

To the east of this vein is the Argentine mine, with a vein seven feet in width, carrying arsenical iron and galena, with both gold and silver.

MEAGHER.

NEIHART DISTRICT.

By many experienced miners this is considered one of the richest districts of this Territory. It is situated on Belt river, a stream capable of affording ample water-power for reduction works large enough to treat the ore product of the camp for many years to come, unless development should be very largely increased above present expectations. The characteristic ore of this locality is free and friable, much like that found upon the surface at Butte when operations first began at that noted camp, and the structure of the lodes is such as to warrant as strong a belief in their permanency and productiveness. One of the best known discoveries there is the Queen of the Hills, which is four to five feet wide and displays exceptionally rich ore but not in a solid pay chute. It is disseminated through the vein in "kidneys" or geodes, which carry black sulphides in such quantities as to make the average pay good for the entire output. The Massachusetts is of about the same character and dimensions. The Montana Bell is five feet wide and there are five different seams of ore which assay from 400 to 1,700 ounces of silver per ton. The Fitzgerald is narrow but very rich. The Grand Prize shows a vein of ore four feet thick, all of which is said to carry good pay, and the Hidden Treasure displays an ore body fully twelve feet wide. These veins are regular in formation and every indication points to a successful outcome for the future of this district.

THE BARKER DISTRICT.

This is one of the districts in which is found ores of such a character as to require smelting, and based on the successful development of the Wright, Edwards and Barker mines, a smelter of about fifteen tons daily capacity was established at Barker, and bullion of fair grade produced, but the obstacles in the way of transportation to and from the mines made the venture unprofitable. Enough, however,

was done to assure the future of this locality as soon as avenues are opened for the cheaper marketing of its product. There is no reasonable doubt about the capabilities of the mines to furnish an abundance of argentiferous galena, if the developments of such mines as the Silver Bell, Wright, Edwards and Barker are a reasonable criterion upon which to base an estimate for future operations. The chief difference between the ores of the Neihart and Barker districts is in the fact that the former rank as milling ores, while the latter are smelting. A judicious expenditure of capital in those districts would no doubt prove one of the richest investments that could be made, on account of the present opportunity to secure properties at reasonable prices.

THE MAGINNIS MINING COMPANY.

The properties of this Company are the Montana and Oro Cache locations at Maiden, Meagher County. Both claims are well opened and their productiveness established. The former is developed by four shafts averaging a depth of thirty feet, and the vein is found to average four feet in width between well-defined walls. The ore carries \$17 silver and \$34 gold per ton on an average. The Oro Cache is opened by an adit level on the vein 300 feet long and a winze sunk from this level eighty-five feet deep. The vein is eighteen feet wide at the deepest point, but the average of pay is about six feet in width, and the walls are well defined. The best ore carries \$67 gold and a trace of silver, but the average assay of the mine's out-put is \$53 gold and \$7 silver per ton. For their developments since 1881 this Company has expended about \$85,000. Their out-put now from both mines aggregates about \$25,000 per month. They have now in operation a mill which treats twenty tons of ore per day. The Company was incorporated in 1884 with Samuel T. Hauser, President; Geo. H. Hill, Secretary, and A. M. Esler, General Manager. The capital stock is \$500,000, consisting of 100,000 shares of \$5 each, and is owned entirely in Helena.

GOLD BLUFF.

This mine is situated seventeen miles northeast of Helena near Trout Creek at the mouth of New York Gulch. Free-milling gold ore averaging over \$15 per ton; vein three and a half feet wide, dipping 60 deg. It is opened on the surface for a distance of 400 feet, showing pay ore all the way. An incline shaft is sunk on the vein which shows improvement in depth both in quality and quantity of ore. The mill is run by water, furnished by a ditch carrying 1,000 inches, sufficient to run fifty stamps.

In the immediate vicinity, and owned by the same parties, are the Home Ticket, Chase and Arthur, all promising lodes.

There are many other promising quartz districts in Meagher County on which we have no reports. Among them may be mentioned Belt Park, Wolf Creek and Yozo, in the Little Belt Mountains. Also lode formations in the Mocassin and Judith Mountains, including those at Copperopolis; also in the Castle Mountains, south of White Sulphur Springs. A large area of the County is still unprospected, and lack of cheap transportation is a great drawback to active operations.

CLARKE'S FORK MINES (Montana and Wyoming.)

This mineral district, commonly spoken of under the general name of Clarke's Fork, is of vast extent. It has been prospected over a length of nearly fifteen miles, with a varying breadth of from one to three miles, with good claims located all the way; and the boundaries of the district are being extended, and rich discoveries constantly being made, on ground before unprospected. Every character of ore is found in the district, from free-milling ore to the most refractory galena. The rock is mostly silver-bearing, though gold exists in all the ore, and a recent specimen taken from one of the leading claims, assayed \$40 in the yellow metal. The locations made are almost numberless, though by far the greater part of them are not developed beyond what is required for purposes of representation. There are now two smelters in the district, one belonging to the Great Republic Mining Company, having a capacity of 50 tons per day; the other owned by the Wells Mining Company, with a capacity of twenty tons per day, which produced the first bullion that was sent out of the district. Spoken of but little in the public press and remote from the track of travel, Clarke's Fork in the past has been practically unknown to the class whose attention would conduce to its prosperity. Cooke City is the commercial center of the district.

ANACONDA MINE AND WORKS.

The Anaconda mine is in Butte, Silver Bow County. The works are at the town of Anaconda, in Deer Lodge County, twenty-five miles distant, the two being connected by rail and also in connection with the Northern Pacific lines.

The Anaconda has a vertical three-compartment shaft, sunk to a present depth of 800 feet, with levels at each 100 feet, and from these levels the Company has shipped to England in the past fifteen months a very large quantity of ore, carrying 30 to 60 per cent copper, and in the same time have placed upon the dump about 200,000 tons of second-class ore, carrying 12 to 14 per cent copper. This ore they ship by rail

to their works at Anaconda, on Warm Spring creek, where it is treated by concentration and smelting, resulting in a 64 per cent. matte.

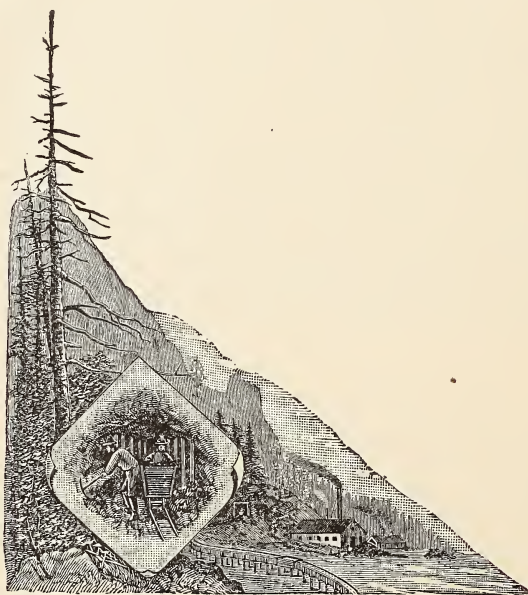
The mine is equipped in a liberal manner with the most approved hoisting machinery, air compressers and drilling machines, which have involved a very large outlay.

The St. Lawrence mine, adjoining the Anaconda on the east, also belongs to this Company, and the developments therein have been on the same magnificent scale as in the Anaconda, and a very large quantity of ore is being extracted.

The reduction and smelting plant at Anaconda is the largest in the world and capable of treating 500 tons of ore per day.

All the business of this great Company is under the efficient management of Mr. Marcus Daly.

There are many mines in Montana not named herein that are of more prominence than some of those noticed, but we failed to get a report upon them.



MISCELLANEOUS.

BANKS AND BANKERS.

Anaconda, Deer Lodge County, Hoge, Daly & Co.
 Bannack, Beaverhead County, Isaac Roe & Bro.
 Billings, Yellowstone County, First National Bank.
 Bozeman, Gallatin County, Bozeman National Bank; Gallatin Valley National Bank.
 Butte, Silver Bow County, First National Bank; Clark & Larabie; Hoge, Brownlee & Co.
 Deer Lodge, Deer Lodge County, Clark & Larabie; First National Bank.
 Dillon, Beaverhead County, Dillon National Bank.
 Fort Benton, Choteau County, First National Bank; Bank of Northern Montana.
 Glendale, Beaverhead County, N. Armstrong & Co.
 Glendive, Dawson County, Bank of Glendive; Merchants Bank.
 Helena, Lewis and Clarke County, First National Bank; Montana National Bank; Merchants National Bank; Second National Bank.
 Livingston, Gallatin County, Bank of Livingston.
 Miles City, Custer County, First National Bank; Stebbins, Mund & Co.
 Missoula, Missoula County, Missoula National Bank.
 Virginia City, Madison County, Henry Elling; Hall, Harrington & Co.
 White Sulphur Springs, Meagher County, Bank of Meagher County.

DIRECTORY OF FEDERAL AND TERRITORIAL OFFICERS OF MONTANA.

Delegate in Congress, Hon. Martin Maginnis	Helena.
TERRITORIAL OFFICERS.	
Governor, B. Platt Carpenter	Helena.
Secretary, J. S. Tooker	"
Auditor, Joseph P. Woolman	"

Treasurer, D. H. Weston	Helena.
Supt. Public Instruction, Cornelius Hedges	"
Attorney-General, Wm. H. Hunt	"
Librarian, Law Library, I. R. Alden	"
Librarian, Miscellaneous Library, Miss Lou Guthrie	"

JUDICIAL.

Chief Justice, D. S. Wade	Helena.
Associate Justice, W. J. Galbraith	Deer Lodge.
" " John Coburn	Bozeman.

DISTRICT ATTORNEYS AND CLERKS.

First District, H. N. Blake	Virginia City.
Second District, W. Y. Pemberton	Butte.
Third District, William H. Hunt	Helena.
Clerk First District Court, T. Muffly	Virginia City.
Clerk Second District Court, R. L. Davis	Deer Lodge.
Clerk Third District Court, B. H. Tatem	Helena.
Clerk Supreme Court, I. R. Alden	"
Reporter Supreme Court, Cornelius Hedges	"

UNITED STATES.

Marshal, A. C. Botkin	Helena.
District Attorney, W. H. Dewitt	Butte.
Collector Customs, T. A. Cummings	Benton.
Collector Internal Revenue, T. P. Fuller	Helena.
Deputy Warden Penitentiary, E. G. Creel	Deer Lodge

UNITED STATES LAND OFFICERS, ETC.

Surveyor-General, John S. Harris	Helena.
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HELENA LAND DISTRICT.

Comprising all Townships not specified below.

Register, F. Adkinson	Helena.
Receiver, Z. T. Burton	"

BOZEMAN LAND DISTRICT.

All the Townships lying South of the base line from Range 2 West to Range 27 East, inclusive. Also Townships 1, 2, 3 and 4 North of the base line and in same Ranges.

Register, O. P. Chisholm	Bozeman.
Receiver, John T. Carlin	"

MILES CITY LAND DISTRICT.

All the Townships lying to the East of Range 27 (the dividing line being that between Ranges 27 and 28 East) whether North or South of the base line.

Register, Washington Berry	Miles City.
Receiver, C. H. Gould	"

UNITED STATES ASSAY OFFICE.

Assayer, Russell B. Harrison Helena.
 Melter, M. A. Meyendorff “

UNITED STATES COMMISSIONERS.

James M. Arnoux, Benton.	Isaac R. Alden, Helena.
Joseph J. Williams, Helena.	Theophilus Muffly, Virginia City.
Wm. P. Burcher, Sun River.	George F. Cowan, Radersburg.
John Potter, Hamilton.	Orville B. O'Bannon, Deer Lodge.
E. E. Farman 2d, Missoula.	Frank H. Woody, Missoula.
A. D. McPherson, Bozeman.	

NEWS BUREAU.

Newspapers are published in all the Counties of Montana except Jefferson. This exception is owing to that County being commercially and geographically connected with Helena, which is situated on its borders.

It is hoped that a full line of the newspapers published in Montana will be kept on file at the Montana Headquarters, with a view to which the following Circular has been sent to the several publishers:

The undersigned, Commissioners for Montana to the World's Exposition at New Orleans, La., to be held from December 16, 1884, to May 31, 1885, have endeavored to have every industry properly represented in the exhibit of this Territory. To that end the Montana press has already given much aid, and will always be the leading factor in showing to the world the many resources and advantages of our growing Territory; and, as furnishing an excellent opportunity for the newspapers of Montana to advertise and increase their circulation, besides imparting to people generally information that could not otherwise be obtained, it is desirable that a NEWSPAPER BUREAU be established at the World's Fair. It is earnestly hoped that you will furnish to the Headquarters, Montana Exhibit, New Orleans, such copies of your paper as you may be willing to contribute, so that a complete file of Territorial journals may be kept during the progress of the Exposition.

Please advise John S. Harris, Commissioner, at Helena, Montana, if you are willing to favor us with your journal.

Very Respectfully,

JOHN S. HARRIS,
 WM. A. CLARK,

Commissioners for Montana.

The following is a list of the newspapers published in the Territory, with date of establishment, etc:

NEWSPAPERS.

LEWIS AND CLARKE COUNTY.

Helena—Herald, daily and weekly, Rep., 1866; Independent, daily and weekly, Dem., 1871; Montana Argus, weekly, German, 1883; Stock and Mining Journal, monthly, Class, 1884; Christian Advocate, monthly, Rel. and Temp., 1882; Montana Baptist, quarterly, Religious, 1884; Montanian, daily, Local, 1884.
Sun River—Sun, weekly, Ind., 1884.

SILVER BOW.

Butte—Miner, daily and semi-weekly, Dem., 1879; Inter-Mountain, daily and semi-weekly, Rep., 1881.

YELLOWSTONE.

Billings—Post, weekly, Rep., 1882; Herald, weekly, Dem., 1882; Rustler, daily, Local, 1884.

GALLATIN.

Bozeman—Avant Courier, weekly, Ind., 1871; Chronicle, weekly, Dem., 1883.
Livingston—Enterprise, weekly, Ind. Dem., 1883.

CUSTER.

Miles City—Yellowstone Journal, daily and weekly, Rep., 1879; Stockgrower's Journal, weekly, Class, 1884.

DAWSON.

Glendive—Times, weekly, Local, 1881; Independent, weekly, Local, 1884.

MISSOULA.

Missoula—Missouliau, weekly, Ind., 1873; Times, weekly, Rep., 1883.

MADISON.

Virginia City—Madisonian, weekly, Dem., 1873; Montana Churchman, monthly, Rel., 1883.

DEER LODGE.

Deer Lodge—New Northwest, weekly, Ind. Rep., 1869.

BEAVERHEAD.

Dillon—Tribune, weekly, Local, 1881.

CHOTEAU.

Fort Benton—River Press, daily and weekly, Rep., 1880; Record, weekly, Dem., 1881.

MEAGHER.

Maiden—Mineral Argus, weekly, Mining, etc., 1883.
Townsend—Tranchant, weekly, Local, 1883.
White Sulphur Springs—Rocky Mountain Husbandman, weekly, Class, 1875.

TEMPERATURES WINTER AND SUMMER.

The following tables, showing thermometer readings for the months of January and July in six consecutive years, are taken from a register of temperatures kept at the U. S. Surveyor General's office, Helena, Montana.

A self-registering thermometer is read at noon of each day for the highest and lowest extremes of the preceding 24 hours.

The tables show for each week in the months of January and July of the years 1879, 1880, 1881, 1882, 1883 and 1884:

WINTER.		Lowest temp. registered.	Aver. of daily lowest temp.	Highest temp. registered.	Aver. of daily highest temp.	Mean of daily highest and lowest reg.
1879	January, 1st week	-12	0	35	24	12
	2d "	1	17	46	34	20
	3d "	2	20	52	37	28
	4th " (10 days)	-1	10	49	35	25
1880	January, 1st week	23	29	48	45	37
	2d "	-7	19	48	36	29
	3d "	27	33	54	48	40
	4th " (10 days)	-11	15	49	33	24
1881	January, 1st week	1	14	43	33	23
	2d "	-20	-3	40	22	16
	3d "	-18	-2	37	22	12
	4th " (10 days)	-25	-7	34	17	8
1882	January, 1st week	22	26	45	42	34
	2d "	7	7	36	24	16
	3d "	12	7	38	28	18
	4th " (10 days)	-15	-2	34	19	9
1883	January, 1st week	-10	6	41	22	14
	2d "	9	25	50	37	31
	3d "	-33	16	32	9	-4
	4th " (10 days)	3	22	46	42	32
1884	January, 1st week	16	-5	41	19	7
	2d "	11	19	50	40	30
	3d "	-10	1	25	17	9
	4th " (10 days)	-10	2	40	20	11

The table opposite is an abstract from the official report of the United States census of 1880, and shows the average number of bushels per acre, counting the whole crop, in several States and Territories:

1. The lowest register in the week.
 2. The average for the week of the lowest daily registers.
 3. The highest register in the week.
 4. The average for the week of the highest daily registers.
 5. The mean of all the highest and lowest registers for the week.
- The elevation of Helena is about a medium as compared with the settled portion of the Territory.
- It may be stated that in nearly all cases when the thermometer registers well down in the zeros, there is a dead calm and dry atmosphere, thus moderating the severity of the temperature.

SUMMER.		Lowest temp. registered.	Aver. of daily lowest temp.	Highest temp. registered.	Aver. of daily highest temp.	Mean of daily highest and lowest reg.
1879	July, 1st week	45	49	83	75	62
	2d "	46	52	86	79	66
	3d "	48	55	86	81	68
	4th " (10 days)	47	54	86	80	67
1880	July, 1st week	43	50	85	77	64
	2d "	39	46	75	68	57
	3d "	40	58	88	81	70
	4th " (10 days)	42	55	86	78	66
1881	July, 1st week	49	54	90	86	70
	2d "	41	46	80	72	58
	3d "	44	52	90	83	67
	4th " (10 days)	46	54	88	80	67
1882	July, 1st week	52	57	90	87	77
	2d "	40	44	77	68	56
	3d "	46	52	85	81	66
	4th " (10 days)	43	50	86	81	65
1883	July, 1st week	42	49	87	78	64
	2d "	47	53	85	81	67
	3d "	43	49	92	77	63
	4th " (10 days)	48	55	86	79	67
1884	July, 1st week	40	51	84	75	63
	2d "	45	49	79	68	59
	3d "	44	47	76	70	58
	4th " (10 days)	43	46	80	74	59

STATE OR TERRITORY.	Wheat.	Oats.	Barley.
MONTANA	26 ¹ / ₂	40 ¹ / ₂	30 ¹ / ₂
Washington	23 ³ / ₄	11	40
Ohio.	18	31	29 ³ / ₄
California	17 ¹ / ₂	28	21
Oregon	16 ¹ / ₂	28 ¹ / ₄	31 ¹ / ₄
New York	15 ¹ / ₂	30	21 ¹ / ₂
Dakota	15 ¹ / ₂	30	18
Minnesota	11 ¹ / ₃	36	25 ³ / ₄
Texas.	8	20	14 ¹ / ₂

SUBORDINATE LODGES OF A. F. AND A. MASONS AND WHERE LOCATED.

Virginia City, No. 1.....	Bannack, No. 16.....	Bannack
..... Virginia City	Silver Star, No. 17..	Silver Star
Montana, No. 2..	Bozeman, No. 18.....	Bozeman
Helena, No. 3.....	Sheridan, No. 20.....	Sheridan
Nevada City, No. 4, Nevada City	Valley, No. 21.....	Townsend
Morning Star, No. 5....	Butte, No. 22.....	Butte
Gallatin, No. 6.....	Glendale, No. 23.....	Glendale
Diamond City, No. 7.....	Mount Moriah, No. 24....	Butte
..... White Sulphur Springs	Benton, No. 25.....	Benton
King Solomon, No. 9....	Yellowstone, No. 26, Miles City	
Flint Creek, No. 11, Philipsburg	West Gate, No. 27, Twin Bridges	
Missoula, No. 13.....	Oriental, No. 28....	Stevensville
Deer Lodge, No. 14, Deer Lodge	Ashlar, No. 29.....	Billings
Jefferson, No. 15....	Dillon, No. 30.....	Dillon
Radersburg		

CHAPTERS R. A. M.

Virginia City Chapter.....	Virginia City
Helena Chapter.....	Helena
Deer Lodge Chapter.....	Deer Lodge
Butte Chapter.....	Butte

COUNCILS R. AND S. M.

Virginia City Council.....	Virginia City
Helena Council.....	Helena

COMMANDERIES, K. T.

Virginia City Commandery, No. 1, K. T.....	Virginia City
Helena Commandery, No 2, K. T.....	Helena
Montana Commandery, No. 3, K. T.....	Butte City
Helena Council, No. 9, R. & S. M.....	Helena

The Masons are building a Masonic Temple in Helena, to cost \$46,000 to \$50,000. The granite foundation has been finished, and the rest of the building will be completed during the coming summer.

INDEPENDENT ORDER OF ODD FELLOWS.

Montana, No. 1.....	Helena
Cottonwood, No. 2..	Deer Lodge
Bannack, No. 3.....	Glendale
Western Star, No. 4....	Bozeman
Excelsior, No. 5.....	Helena
Covenant, No. 6.....	Missoula
Fidelity, No. 8.....	Butte
Cable, No. 9.....	Philipsburg
Samaritan, No. 10....	Sheridan
Choteau, No. 11.....	Benton
Ridgely, No. 12.....	Butte
Custer, No. 13.....	Miles City
Garden Valley, No. 14.....	
.....	Stevensville
Apollo, No. 15.....	Dillon
Castle Mountain, No. 16....	
.....	White Sulphur Springs
Park, No. 17.....	Livingston

DAUGHTERS OF REBEKAH LODGES, I. O. O. F.

Naomi, No. 1	Helena		Miriam, No. 2	Butte
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ENCAMPMENTS.

Rocky Mountain, No. 1, Helena	Missoula, No. 5	Missoula
Golden Star, No. 2, Deer Lodge	Sentinel, No. 6	Miles City
Crusader, No. 3	Golden Rule, No. 7	Benton
Summit. No. 4		

Wilkey Uniformed Degree, Camp No. 1	Butte
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GOOD TEMPLAR LODGES.

Diamond, No. 1	Lincoln, No. 10	Fort Ellis
.... White Sulphur Springs	Stevensville, No. 11, Stevensville	
Helena, No. 2	Hesper, No. 12	Marysville
Boulder Star, No. 3	Eureka, No. 13	Wickes
.... Boulder Valley	Butte City, No. 14	Butte
Sheridan, No. 4	Rescue, No. 15	Livingston
Fish Creek, No. 5	Budds, No. 16, Fort Assinaboine	
Unity, No. 6	Missoula, No. 17	Missoula
Liberty, No. 7	Morning Star, No. 18	Butte
Hayes, No. 8	New Chicago, No. 19	
Victor, No. 9	 New Chicago	

ANCIENT ORDER UNITED WORKMEN.

Butte, No. 1	Barker, No. 10	Gold Run
Capital, No. 2	Silver Bow, No. 11, Walkerville	
Union, No. 3	Hecla, No. 12	Glendale
Alta, No. 4	Mt. Powell, No. 13	Deer Lodge
Bozeman, No. 5	Protection, No. 15	Helena
Gem, No. 6	Summit Valley, No. 16	Butte
.... White Sulphur Springs	Twin Bridges, No. 17	
Dillon, No. 7	 Twin Bridges	
Bedford, No. 8	Maiden, No. 18	Maidenville
Montana, No. 9	Silver Creek, No. 19, Marysville	

KNIGHTS OF PYTHIAS.

Damon, No. 1	Valley, No. 6	Deer Lodge
Pythagoras, No. 2	Crusader, No. 7	Miles City
Myrtle, No. 3	Occident, No. 8	Dillon
Crescent, No. 4	Oswego, No. 9	Butte
Ivanhoe, No. 5		

UNIFORM RANK, KNIGHTS OF PYTHIAS.

Mount Helena Division, No. 1.....	Helena
Silver Bow Division, No. 2.....	Butte

ENDOWMENT RANK, KNIGHTS OF PYTHIAS.

Section 547.....	Helena
Section 564.....	Butte

OTHER SOCIETIES.

Miners' Union.
 Knights of Labor.
 Knights of Honor.
 Robert Emmett Society.
 Ancient Order of Hibernians.
 Ancient Order of Foresters.
 Printers' Union.

CHURCHES.

CATHOLIC.

Helena—Cathedral of the Sacred Heart, Rt. Rev. J. B. Brondel, Bishop of Helena; Revs. C. Imoda, S. J., J. Guidi, S. J., P. Barcelo, S. J., Assistants.
 Near Ft. Shaw—St. Peter's Mission; Church of St. Peter, Rev. J. Damiani, S. J., J. Bandini, S. J., G. Genna, S. J.
 Sun River—Chapel of St. Joseph.
 Birch Creek—Chapel of the Holy Family. Both attended from St. Peter's Mission.
 Fort Benton—Church of the Immaculate Conception, Rev. F. Ebersville, S. J.
 Canton—Chapel of St. Joseph. Attended from Helena.
 Boulder Valley—Chapel of St. John. Attended from Helena.
 Miles City—Church of the Sacred Heart, Rev. E. W. J. Lindersmith, Chaplain U. S. A. at Fort Keogh.
 Billings—Church not finished. Attended from Livingston.
 Livingston—Church not finished, Rev. J. D. Halton.
 Three Forks—Chapel of the Holy Family. Attended from Helena.
 Butte—Church of St. Patrick, Revs. J. J. Dols, P. A. McManus.
 Virginia City—Church of All Saints. Attended from Butte.
 Laurin—Church of St. Mary. Attended from Butte.
 Deer Lodge—Church of the Immaculate Conception, Rev. R. DeRyckere.
 Missoula—Church of St. Francis Xavier, Rev. J. Menetrey, S. J.
 Frenchtown—Church of St. Joseph, Rev. L. G. Tremblay, S. T. L.
 St. Ignatius Mission—Church of St. Ignatius, Rev. L. B. Palladino, S. J., L. Van Gorp, S. J., J. Bandini, S. J., P. P. Prando, S. J.

Stevensville—Church of St. Mary, Rev. J. D'Aste, S. J.

By Apostolic letters dated Rome, March 7, 1884, the Vicariate of Montana was erected into a Diocese, whose Episcopal See was established at Helena, and the Church of the Sacred Heart was raised to the rank of a Cathedral, and Apostolic Administrator, John Baptist Brondel, was appointed the first Bishop of Helena.

EPISCOPAL.

Bishop—The Rt. Rev. Leigh Richmond Brewer, S. T. D., residence Helena.

PARISHES, MISSIONS AND CLERGY.

Bannack.....		A. D. Drummond
Billings	St. Luke's	Alfred Brown
Bozeman	St. James.....	F. B. Lewis
Butte.....	St. John.....	S. C. Blackiston
Deer Lodge.....	St. James.....	"
Dillon	St. James.....	A. D. Drummond
Ft. Assinaboine.....		C. S. Fackenthall
Ft. Benton		"
Ft. Keogh.....		Wm. Horsfall
Ft. Shaw and Sun River.....		C. S. Fackenthall
Glendale.....	St. Mark's..	A. D. Drummond
Glendive	St. Matthew's	Wm. Horsfall
Helena	St. Peter's... F. T. Webb and S. D. Hooker	
Jefferson and Boulder.....		"
Marysville.....	St. Mary's.....	"
Townsend.....		"
Livingston.....		Alfred Brown
Madison Valley	Trinity.....	E. G. Prout
Miles City	St. Paul's.....	Wm. Horsfall
Missoula	Holy Spirit	Geo. Stewart
Virginia City.....	St. Paul's	E. G. Prout

PRESBYTERIAN.

Helena.....	Rev. T. V. Moore, Pastor
Bozeman.....	Rev. A. M. Stevenson, "
Butte.....	Rev. F. W. Flint, temporary supply
Wickes.....	Rev. L. E. Hanna, Pastor elect
Deer Lodge.....	Rev. E. J. Groeneweld, "
Miles City.....	Rev. E. P. Linnell, stated supply
Missoula.....	Rev. Geo. M. Fisher, "
Livingston.....	Vacant
Stevensville.....	Rev. Edwin M. Ellis, stated supply
Corvallis.....	" " "
Skalkaho.....	" " "
Hamilton.....	Vacant

Etna, Hathaway and Rosebud Supplied from Miles City
 Carlton, Etna (Bitter Root), Burnt Fork and Victor
 Supplied from Stevensville

BAPTIST.

Helena Rev. L. L. Wood, Pastor
 Miles City Rev. Geo. M. Downey, "
 Butte Rev. W. C. Clark, "
 Glendale Mission
 Stevensville Rev. D. McGregor, "
 Missoula Rev. D. McGregor, Pastor
 Dillon
 Townsend
 Livingston
 Bozeman Rev. Geo. B. Morse, Pastor
 Hillsdale " " "
 Gallatin Valley
 Churches in 4 years in 12 places, 5 Pastors, 6 meeting houses, 2
 parsonages.

CONGREGATIONAL.

Helena Rev. R. B. Tobey, Pastor
 Butte Rev. C. L. Diven, "
 Billings Rev. S. A. Wallace, "
 Glendive Rev. D. E. Todd, "
 Livingston Rev. W. E. Archibald, "

METHODIST.—APPOINTMENTS AND MINISTERS.

F. A. Riggan, M. A. Superintendent of Missions.

Helena District.—George Comfort, P. E.

Helena J. Jay Garvin, B. D.
 Helena Circuit E. J. Bickell, M. A.
 Billings To be supplied
 Bozeman G. C. Stull, B. A.
 Cinnabar and Cooke To be supplied
 Gallatin Valley E. M. Tower
 Gallatin City and missionary at large W. W. Van Orsdel
 Glendive W. B. Combe
 Judith Basin and Benton J. Mills and J. D. Finney
 Livingston H. D. Wadsworth, B. D.
 Miles City R. C. Moulton
 Sun River W. J. Hunter
 White Sulphur Springs and Townsend M. J. Hall and D. J. Frew

Butte District.—F. A. Riffin, P. E.

Butte.....	J. B. Chynoweth
Butte Circuit.....	J. W. Bennett
Corvallis.....	To be supplied
Dillon.....	H. J. Norris
Deer Lodge and New Chicago.....	To be supplied
Glendale and Beaverhead Valley.....	H. Duncan
Eagle Rock.....	To be supplied
Horse Plain and Flathead Lake.....	"
Jefferson Valley.....	F. G. Boylan
Madison Valley.....	To be supplied
Missoula.....	W. A. Shannon
Phillipsburg.....	Fred Flawith
Salmon City and Junction.....	O. W. Mintzer
Stevensville.....	W. M. Nutting
Virginia City.....	W. E. King, B. D.

DISCIPLES.

Anaconda.....	Elder J. L. Phoenix, Pastor
Corvallis.....	Elder W. D. Lear, "
Deer Lodge.....	Elder Galen Wood, "
Helena.....	Elder M. L. Streater, "
Missoula.....	Elder W. D. Lear, "
Ulidia.....	Elder James M. Largent, "

INFORMATION FOR EMIGRANTS.

The exemption laws of Montana are very liberal, exempting homestead not exceeding 160 acres or \$2,500 in value, all wearing apparel, one sewing machine, household and kitchen furniture, provisions and fuel, two cows with their calves, two swine, fifty chickens, the personal earnings of a judgment debtor for thirty days preceding the levy of execution, farming implements, mechanics' tools, library and instruments of professional men, and the dwellings, tools and machinery of miners. The property of widows and orphans not exceeding \$1,000 is exempt from taxation.

Money usually loans from 1 to 1¼ per cent. per month. The legal rate, in the absence of contract, is 10 per cent. per annum.

A residence of six months in the Territory and thirty days in the county qualifies a citizen as voter. Declaration of intention gives the same privilege, with the same limitations.

INFORMATION IN BRIEF.

There is not to-day an idle man in the Territory who is willing to

use his brains or muscles--particularly the latter--to earn a livelihood, and probably less than the usual number that may be found everywhere, who are trying to earn a living from easy or *genteel* work.

Montana has twenty-seven newspaper, which is a sufficient comment on the intelligence and enterprise of its present sparse population.

The stock raising interests of the Territory are increasing at an exceedingly rapid rate. Montana beef always commands the highest price in Chicago. Great attention is given to the improvement in the breed of all kinds of stock. Many thousands of dollars have been expended within the past few years in the importation of pedigreed bulls, and also in thoroughbred horses and rams.

Montana is traversed by about 1,200 miles of railroad track, and branches are projected to many important towns which at present have no railroad facilities.

Helena, Butte, Fort Benton and Miles City are the principal commercial centers in the Territory. Butte, Glendale, Lion, Philipsburg, Wickes, Marysville, Belmont, Silver Star, Montrose and Cooke are the most important mining centers. The towns of Missoula, Deer Lodge, Virginia City, Bozeman and White Sulphur Springs are the chief agricultural centers. Helena is a center for all interests.

There are at least a hundred mines within the boundaries of Montana, which for richness, extent and indications of permanence are not exceeded, if equalled, anywhere else in the world. The great mineral fields are in the central and southern counties, the eastern, western and northern counties being chiefly remarkable for their agricultural and stock-raising resources.

In no section of the Union are better laws more rigidly enforced than in Montana.

It is estimated that 20,000 immigrants have taken up homes during the past year, chiefly near the line of the N. P. R. R., in Eastern Montana, the past year being the first one succeeding the opening of the N. P. R. R.

Post-office statistics show that the residents of Montana receive more letters per capita than those of any other Territory.

Churches and schools are numerous, and in no portion of the United States can families be raised under better influences.

By law the school assessment in the several counties must not be less than 3, nor more than 5, mills on the dollar. In Lewis and Clarke it is 5 mills ($\frac{1}{2}$ per cent.), and in Silver Bow and some others, $3\frac{1}{2}$ mills.

The following rates will be in effect to New Orleans and return during the World's Fair by Northern Pacific Railroad:

FROM	ROUND TRIP.	FROM	ROUND TRIP.
Little Falls, Minnesota..	\$ 36.00	Coopertown, Dakota	\$ 45.85
Sauk Centre, " ..	36.25	Bismarck, "	49.05
Morris, " ..	37.90	Mandan, "	49.55
Brainerd, " ..	37.25	Dickinson, "	56.10
Wadena, " ..	39.10	Glendive, Montana	62.50
Fergus Falls, " ..	39.05	Miles City, "	67.20
Wahpeton, Dakota	40.25	Custer, "	72.80
Milnor, "	41.75	Billings, "	76.00
Detroit, Minnesota	40.85	Livingston, "	85.00
Glyndon, "	41.25	Bozeman, "	90.00
Moorhead, "	41.25	Townsend, "	97.00
Fargo, Dakota	41.25	Helena, "	102.75
Sheldon, "	42.90	Garrison, "	102.75
Lisbon, "	43.65	Butte, "	102.75
LaMoire, "	45.25	Missoula, "	109.65
Casselton, "	42.05	Spokane Falls, W. T.	133.40
Wheatland, "	42.35	Cheney, "	134.70
Valley City, "	43.60	Sprague, "	136.70
Sanborn, "	44.05	Wallula Junction, "	146.55
Jamestown, "	45.00		

The above rates are for tickets limited to 40 days. Price of round trip tickets from Helena, Butte, Garrison or Bozeman, running to May 31st, 1885, \$110.

Utah Northern and Northern Pacific.—Eastern mail train arrives at Butte 4:10 p. m.; departs 11:25 a. m.

During continuance of the the New Orleans World's Exposition, tickets will be sold at reduced rates from points named below. Regular excursion tickets are good for the return up to and including June 1st. Special Exposition excursion tickets are sold at a reduction in price from the regular excursion rate, and are good for 50 days.

Going time allowed is 10 days and returning time 10 days, allowing a full month in New Orleans and vicinity.

	REGULAR.	SPECIAL.		REGULAR.	SPECIAL.
Butte	\$110.00	\$102.75	Helena	\$110.00	\$102.75
Stuart	110.00	102.75	Garrison	110.00	102.75
Dillon	110.00	102.75	Anaconda	110.00	102.75
Deer Lodge	110.00	102.75			

ACKNOWLEDGMENTS.

The Commissioners for Montana take great pleasure in acknowledging the liberality of the Northern Pacific and the Union Pacific railroads and their connecting lines. They have forwarded to New Orleans, free of charge, all the Montana exhibit.

In presenting this pamphlet on the "Resources of Montana" to the world, we would acknowledge the assistance of many who have aided us in furnishing, collecting and arranging reports, but could wish, as to some localities and industries, that our information was more complete.

JOHN S. HARRIS,

WM. A. CLARK,

January 1, 1885.

Commissioners for Montana.

